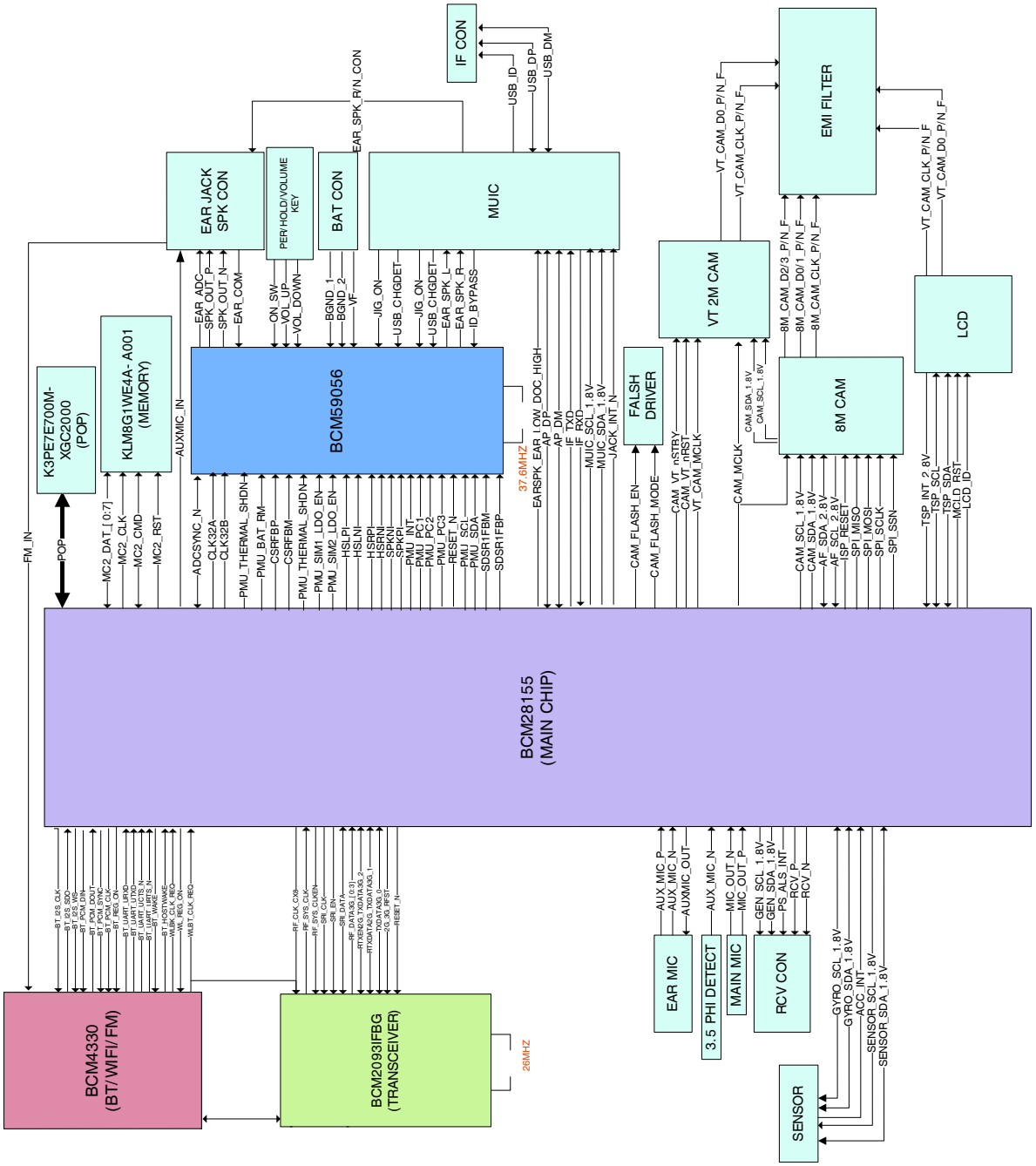
8. Level 3 Repair

8-1. Block Diagram

BB



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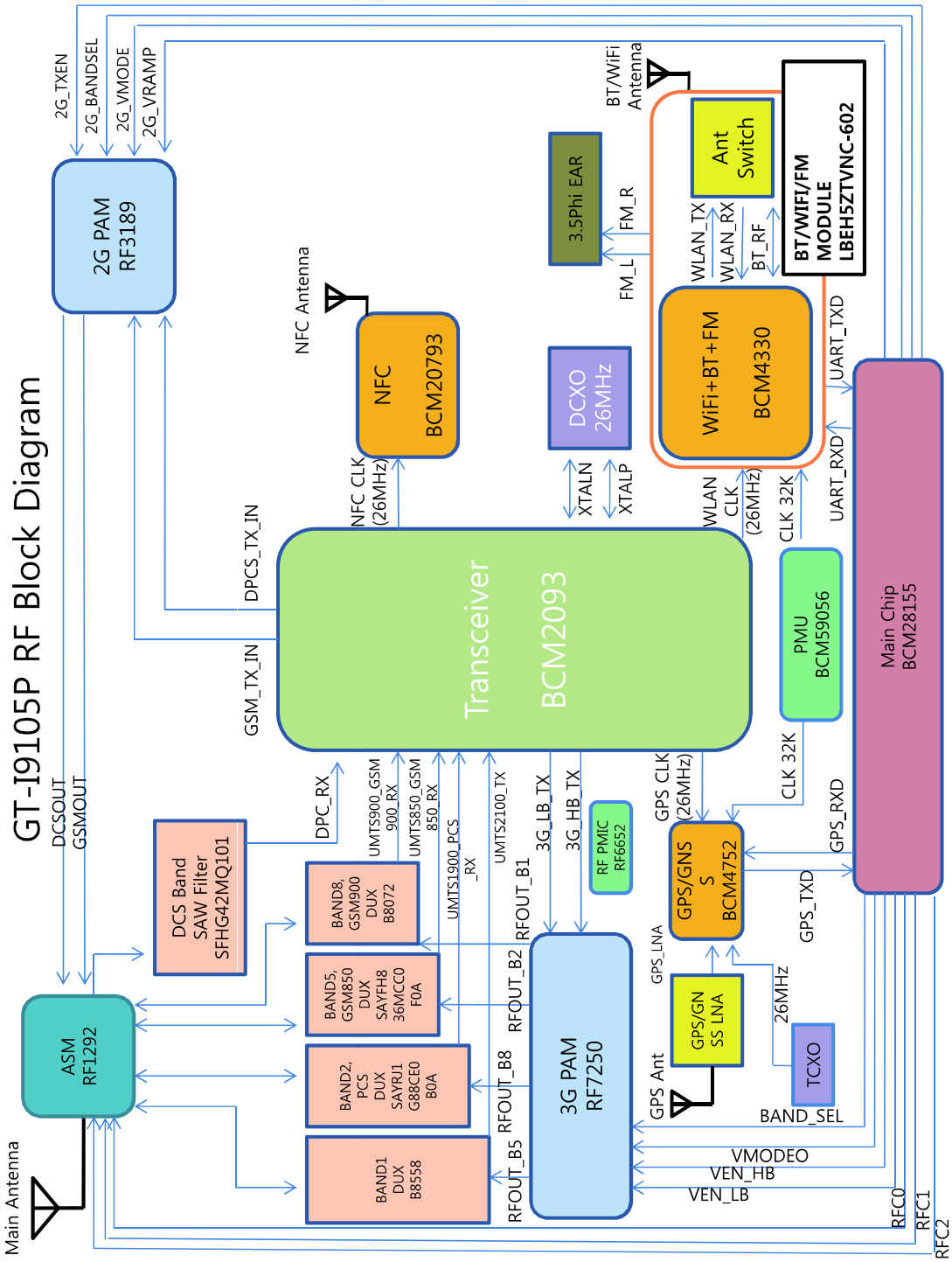
RF



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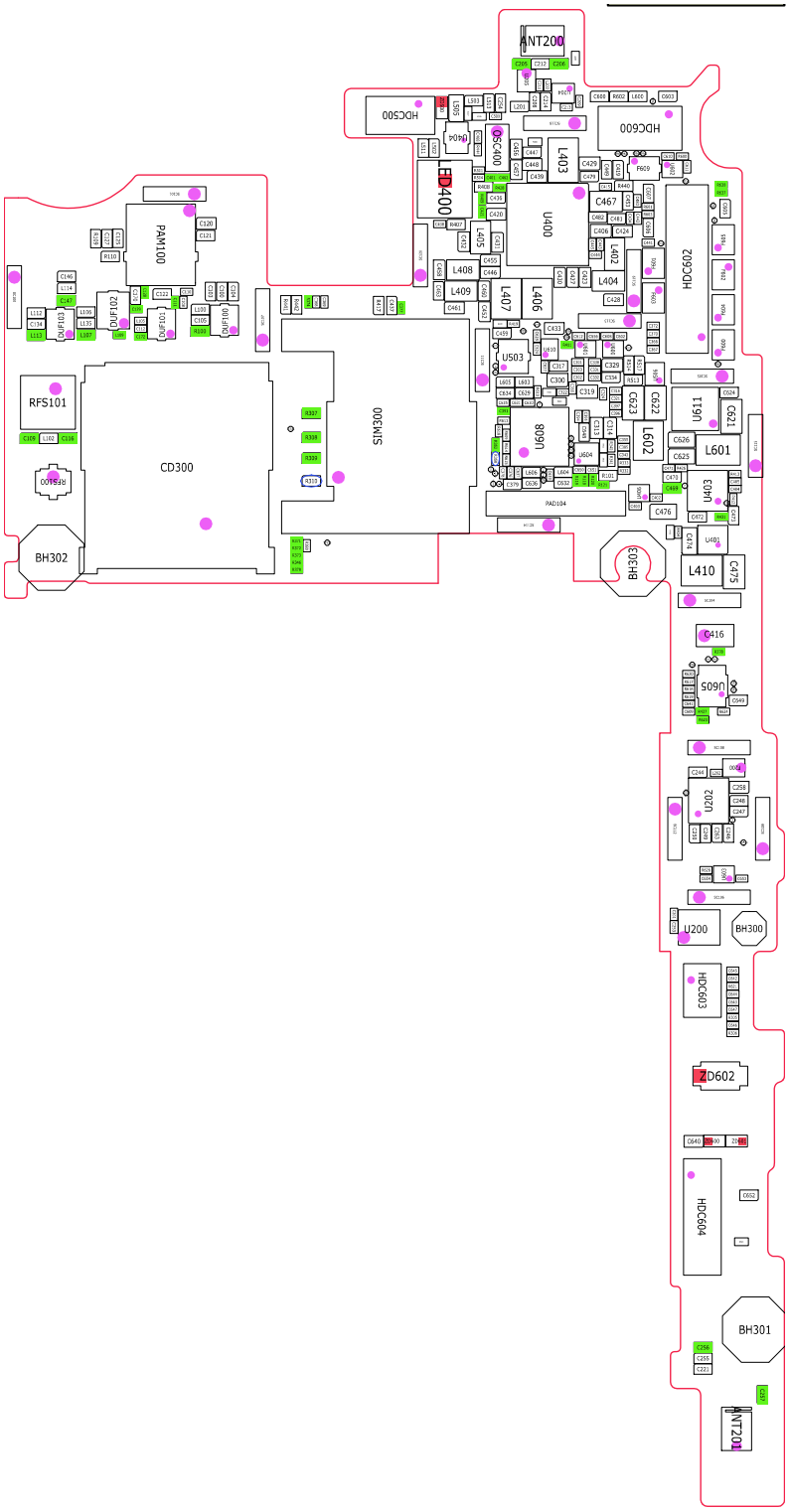
8-2. PCB Diagrams

8-2-1. Top



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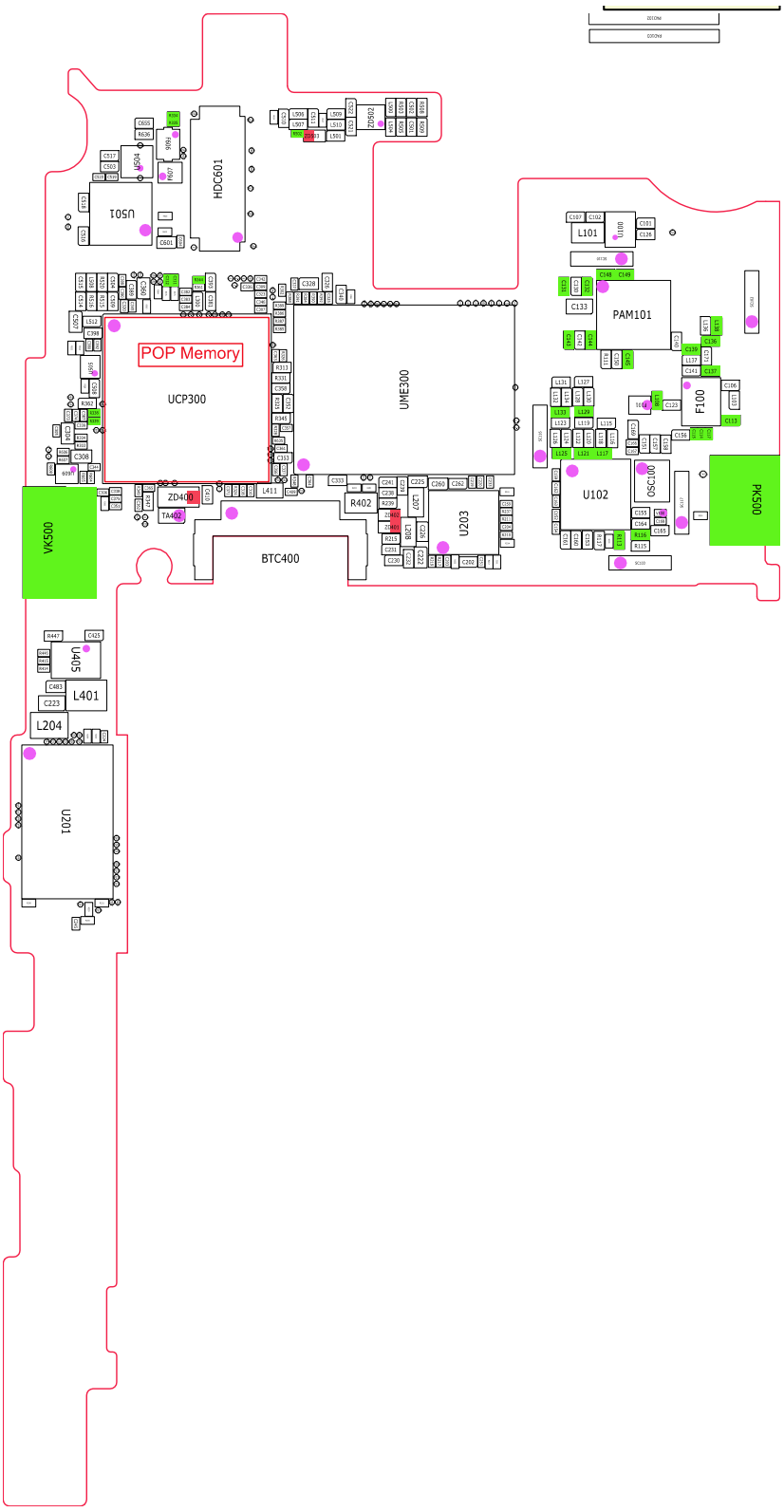
8-2-2. Bottom



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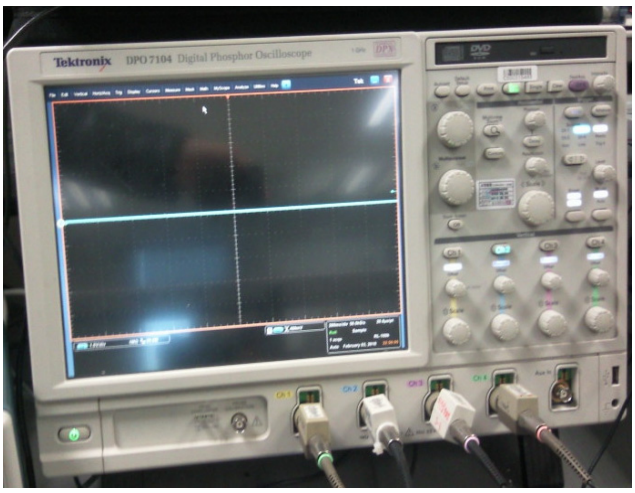
8-3. Flow Chart of Troubleshooting

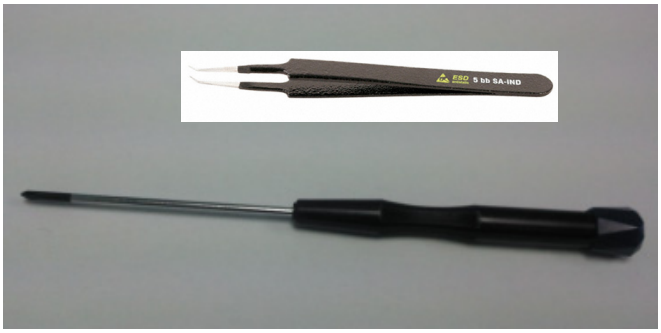
Equipments



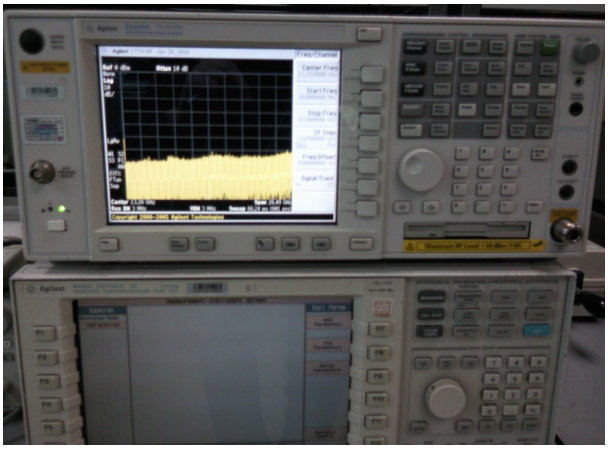
↑ Oscilloscope

↑ Digital Multimeter

↑ Power Supply



↑ + driver, ESD Safe Tweezer



↑ 8960 & Spectrum Analyzer

↑ Soldering iron

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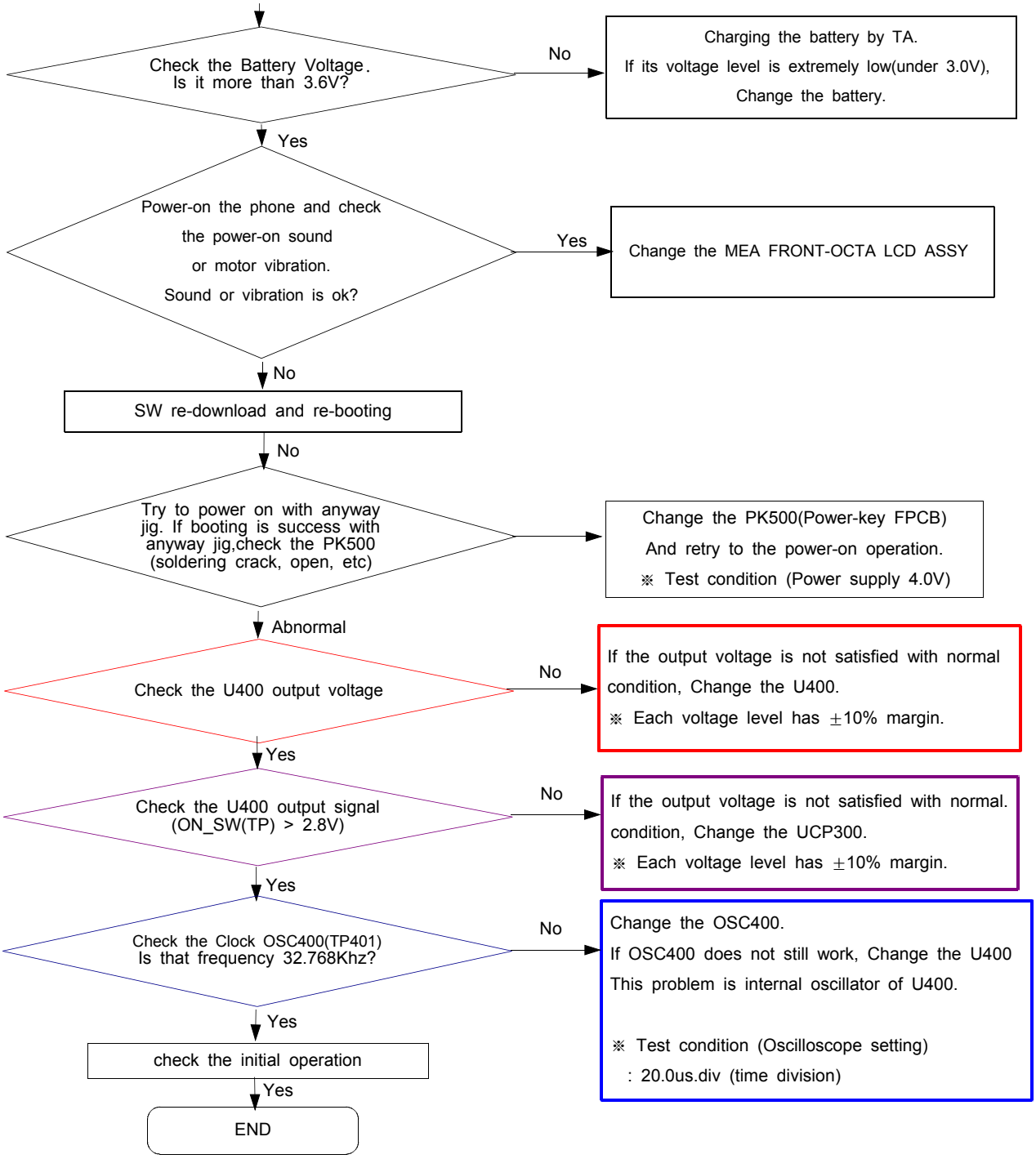
8-3-1. Power On


Check the Battery Voltage.
Is it more than 3.6V?
No
Charging the battery by TA.
If its voltage level is extremely low(under 3.0V),
Change the battery.
Yes
Power-on the phone and check
the power-on sound
or motor vibration.
Sound or vibration is ok?
Yes
Change the MEA FRONT-OCTA LCD ASSY
No
SW re-download and re-booting
No
Try to power on with anyway
jig. If booting is success with
anyway jig,check the PK500
(soldering crack, open, etc)
Change the PK500(Power-key FPCB)
And retry to the power-on operation.
※ Test condition (Power supply 4.0V)
Abnormal
Check the U400 output voltage
No
If the output voltage is not satisfied with normal
condition, Change the U400.
※ Each voltage level has ±10% margin.
Yes
Check the U400 output signal
(ON_SW(TP) > 2.8V)
No
If the output voltage is not satisfied with normal.
condition, Change the UCP300.
※ Each voltage level has ±10% margin.
Yes
Check the Clock OSC400(TP401)
Is that frequency 32.768Khz?
No
Change the OSC400.
If OSC400 does not still work, Change the U400
This problem is internal oscillator of U400.
※ Test condition (Oscilloscope setting)
: 20.0us.div (time division)
Yes
check the initial operation
Yes
END

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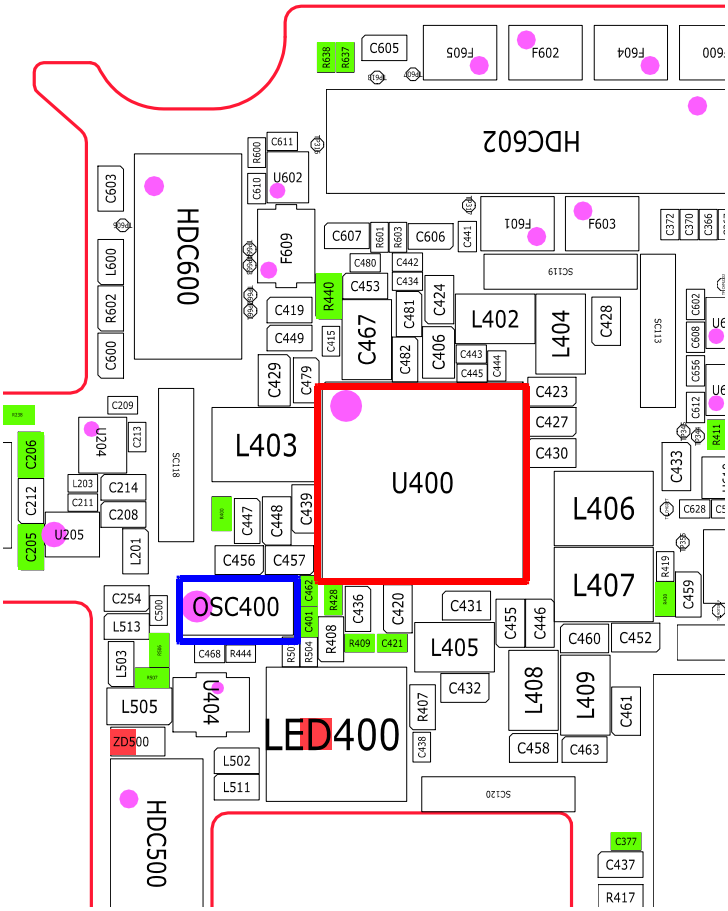

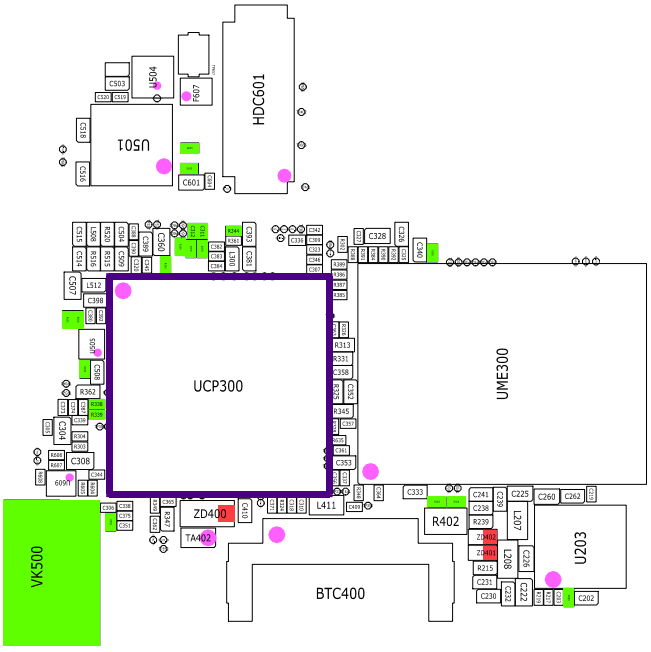

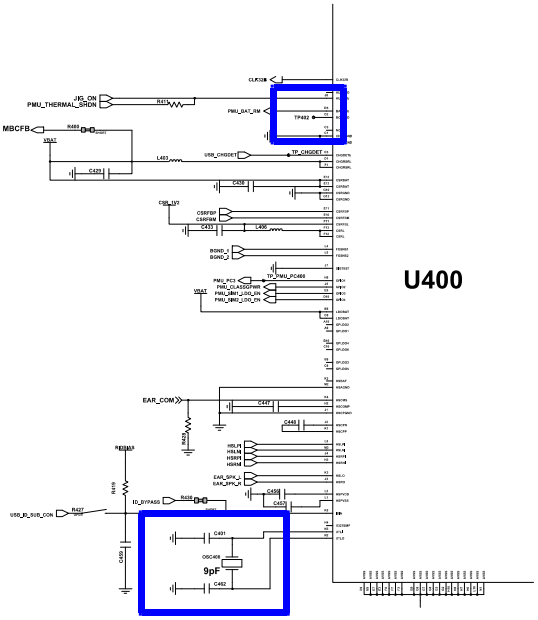

U400

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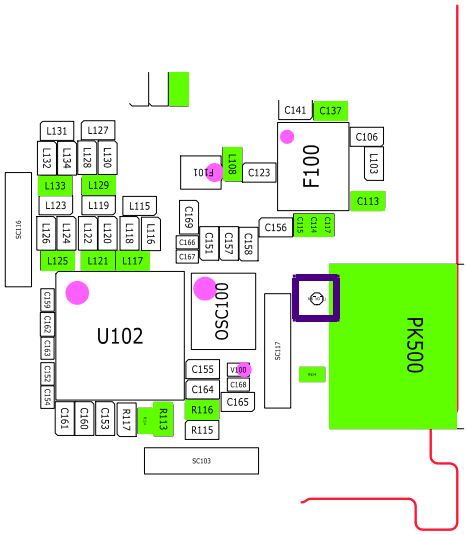

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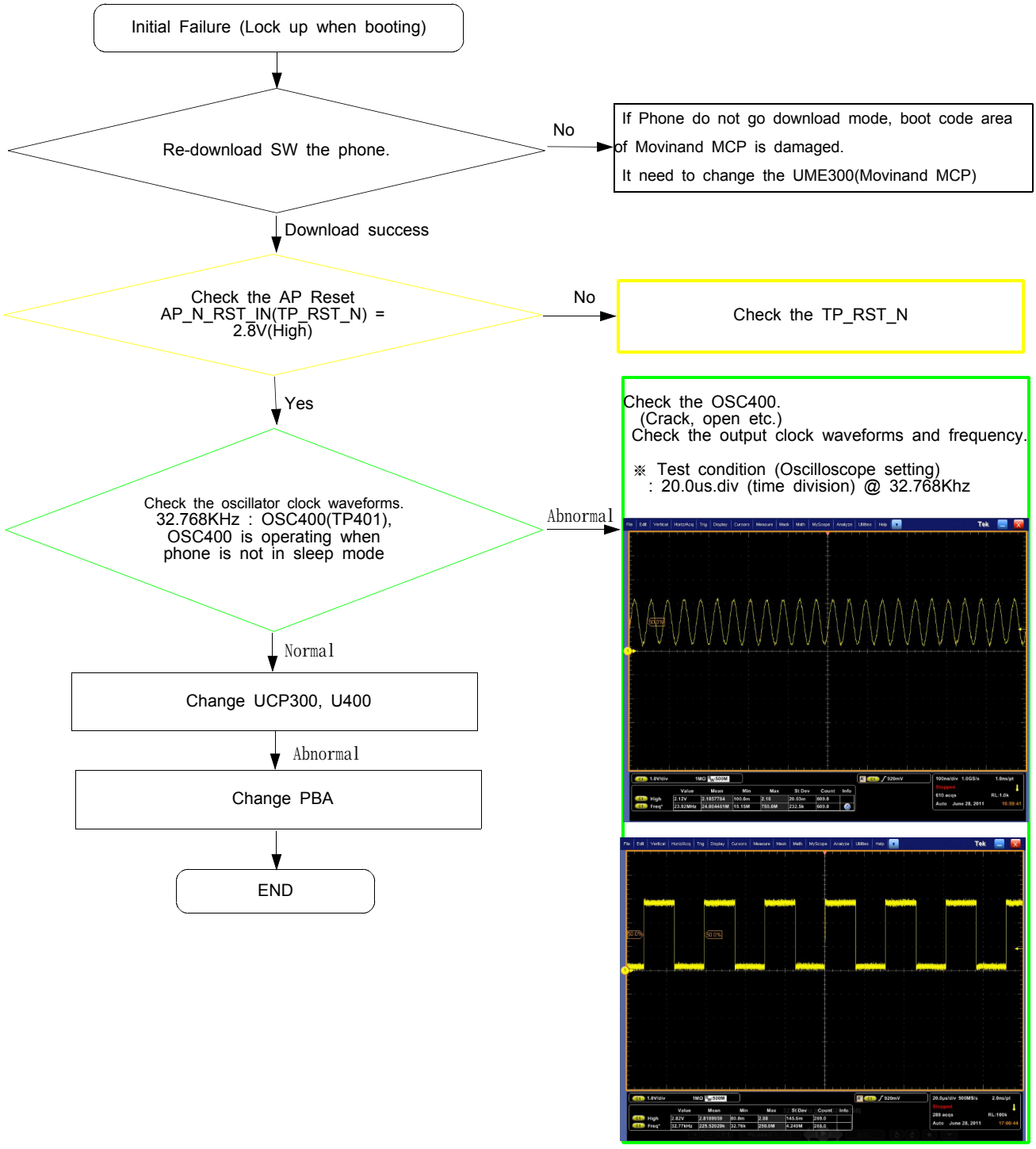
8-3-2. Initial (Lock up)


Initial Failure (Lock up when booting)
Re-download SW the phone.
No
If Phone do not go download mode, boot code area of Movinand MCP is damaged.
It need to change the UME300(Movinand MCP)
Download success
Check the AP Reset AP_N_RST_IN(TP_RST_N) = 2.8V(High)
No
Check the TP_RST_N
Yes
Check the oscillator clock waveforms. 32.768KHz : OSC400(TP401), OSC400 is operating when phone is not in sleep mode
Abnormal
Check the OSC400.
(Crack, open etc.)
Check the output clock waveforms and frequency.
※ Test condition (Oscilloscope setting)
: 20.0us.div (time division) @ 32.768Khz
Normal
Change UCP300, U400
Abnormal
Change PBA
END

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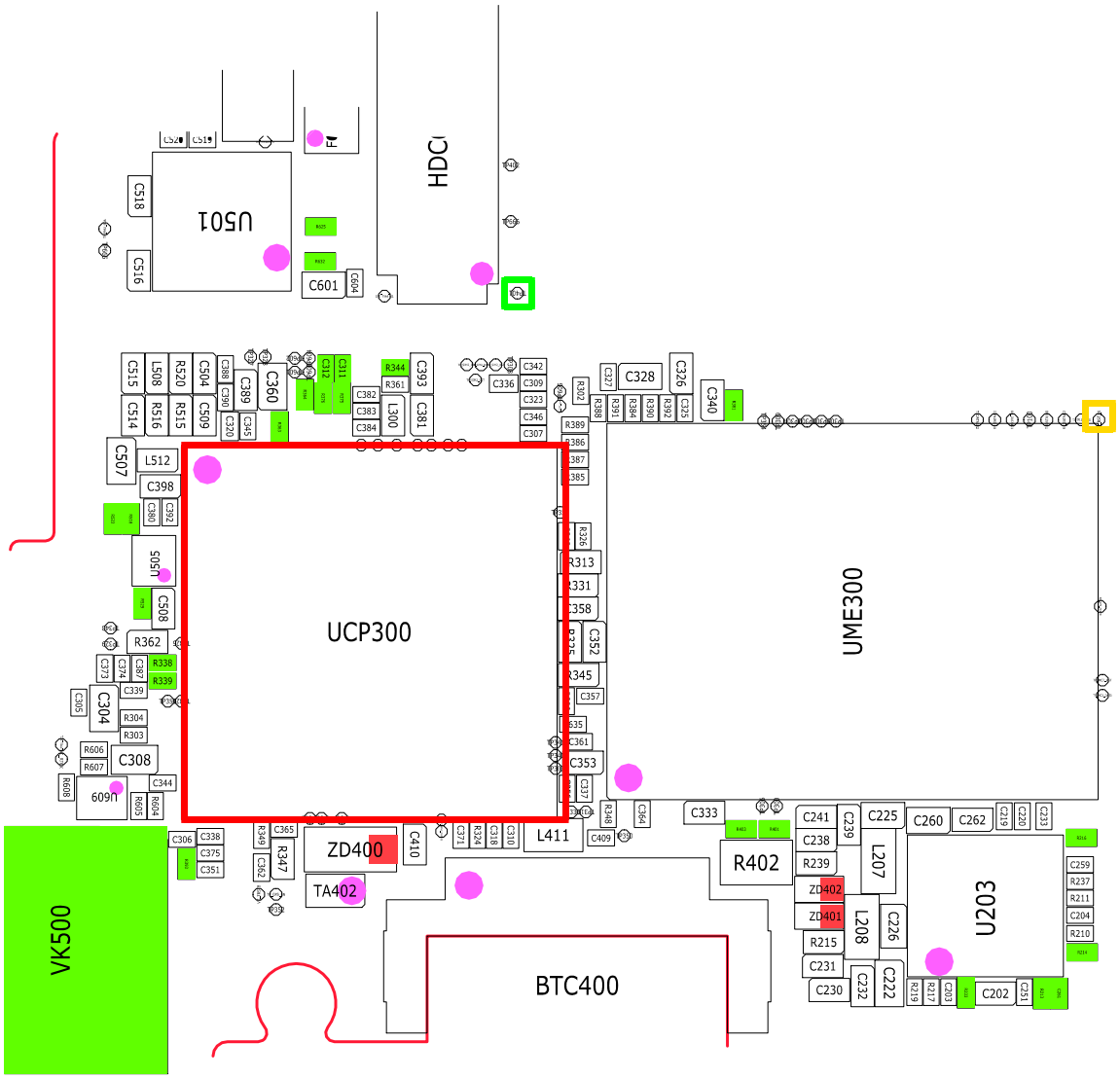
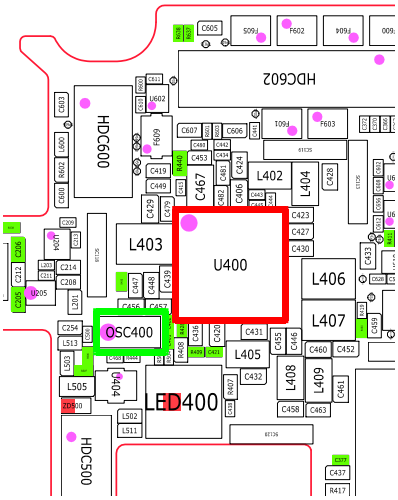

U501
HDC
C518
C516
C601
C515
L508
R520
C504
C388
C360
C389
C311
R344
C393
C328
C326
C340
C514
R516
R515
C509
C320
C345
C382
R361
C383
C384
L300
C381
C336
C342
C309
C323
C346
C307
R389
R386
R387
R385
C507
L512
C398
C380
C392
U505
C508
R362
C373
C374
C387
R338
R339
C339
C305
C304
R304
R303
R606
R607
C308
C344
R608
609Ω
R605
R604
UCP300
UME300
R326
R313
C331
C358
C352
C345
C357
C535
C361
C353
C333
C241
C239
C225
C260
C262
C220
C233
C238
R239
R402
L207
C259
R237
R211
C204
R210
ZD402
ZD401
R215
C231
C230
L208
C226
C222
U203
R219
R217
C203
C202
C251
C306
C338
C375
C351
C365
R349
R347
C362
ZD400
TA402
C410
R348
C364
C409
L411
R324
C318
C310
VK500
BTC400


HDC602
HDC600
U602
F602
F603
F604
F605
C605
C606
C607
C608
C609
C610
C611
C612
C613
C614
C615
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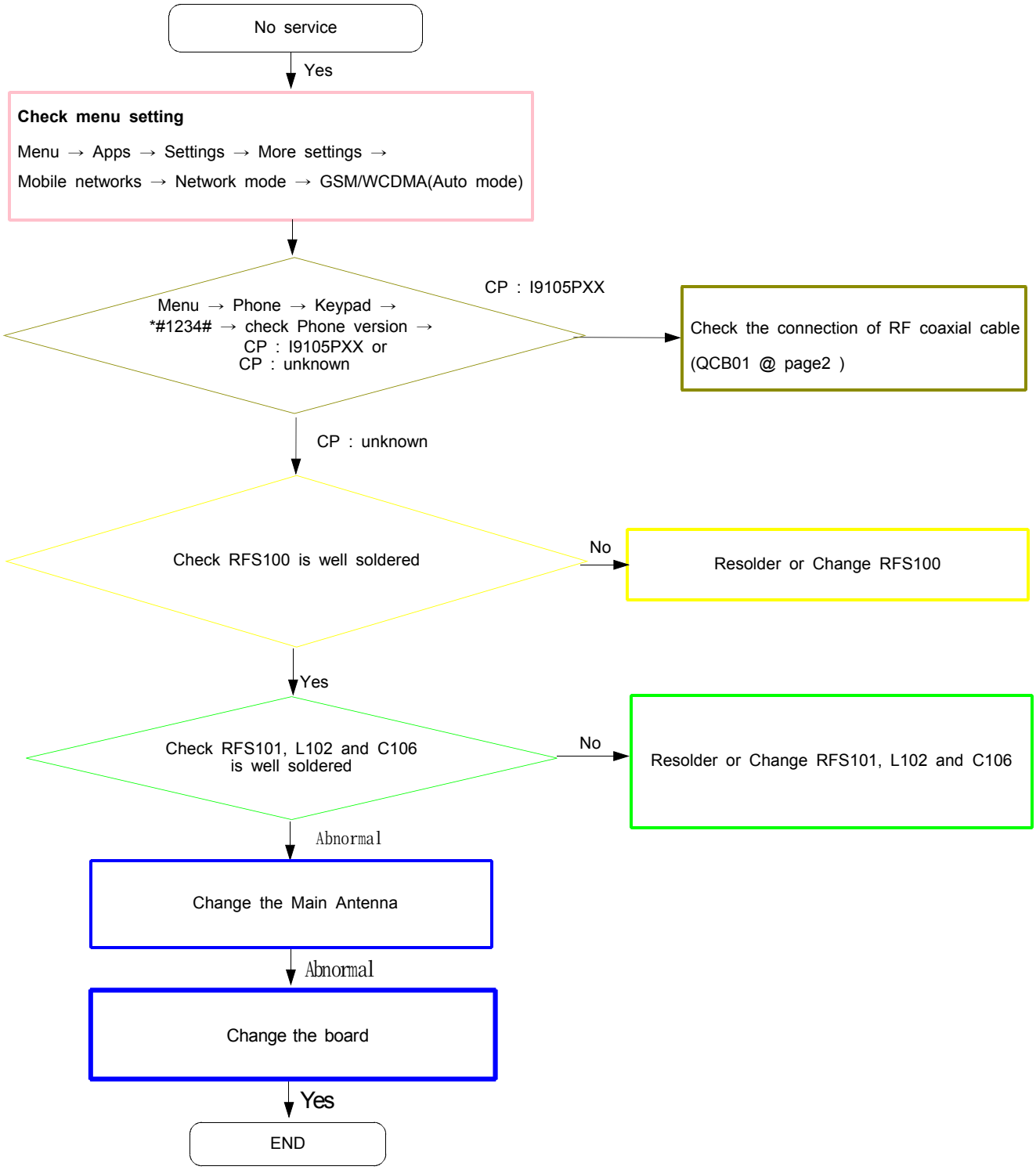
C643
C644

8-3-3. No Service



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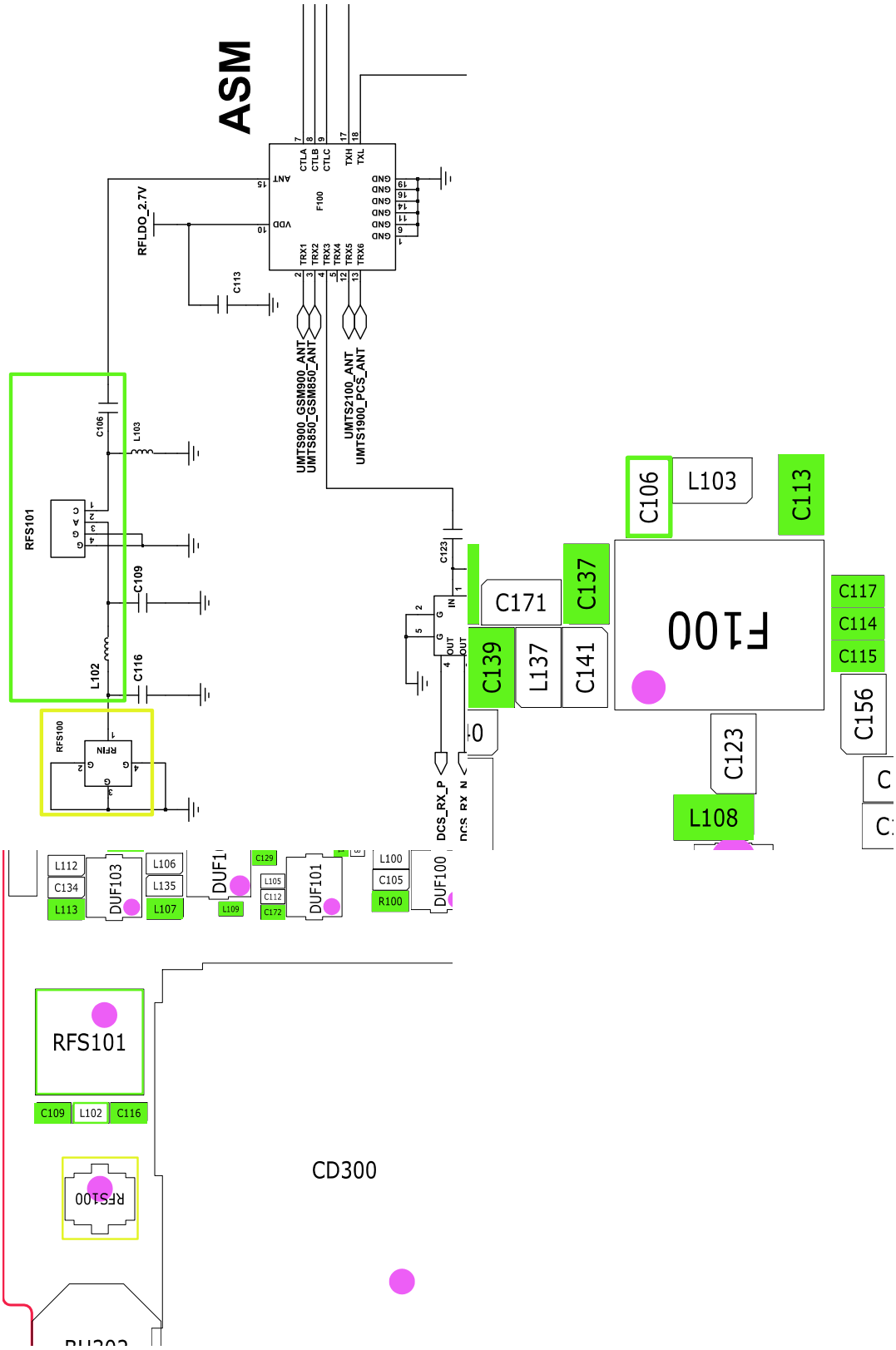

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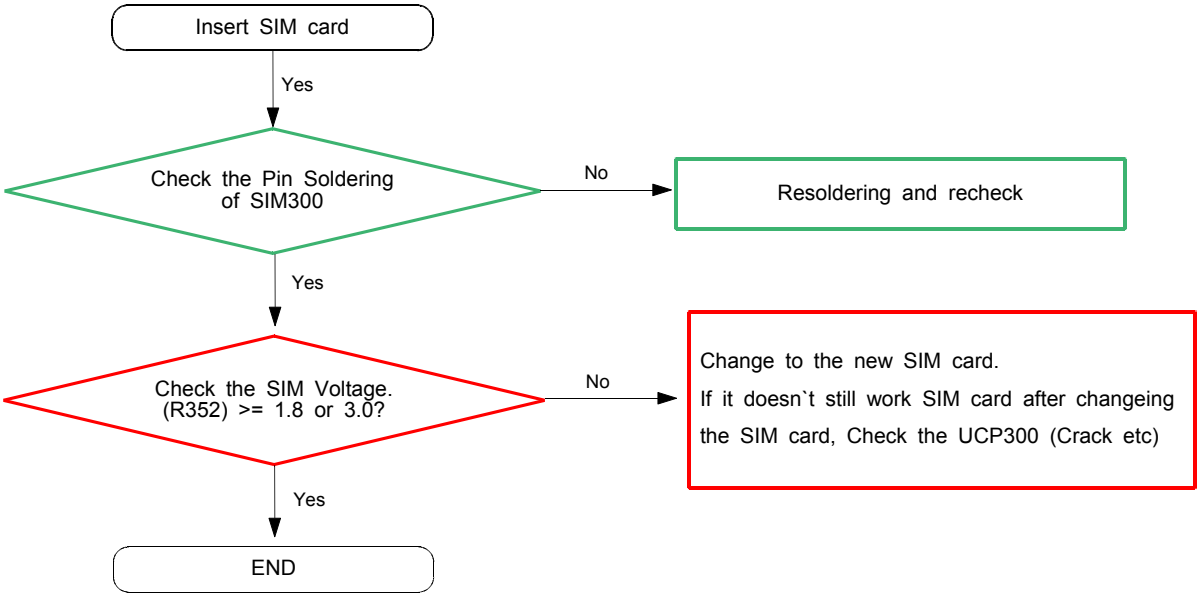
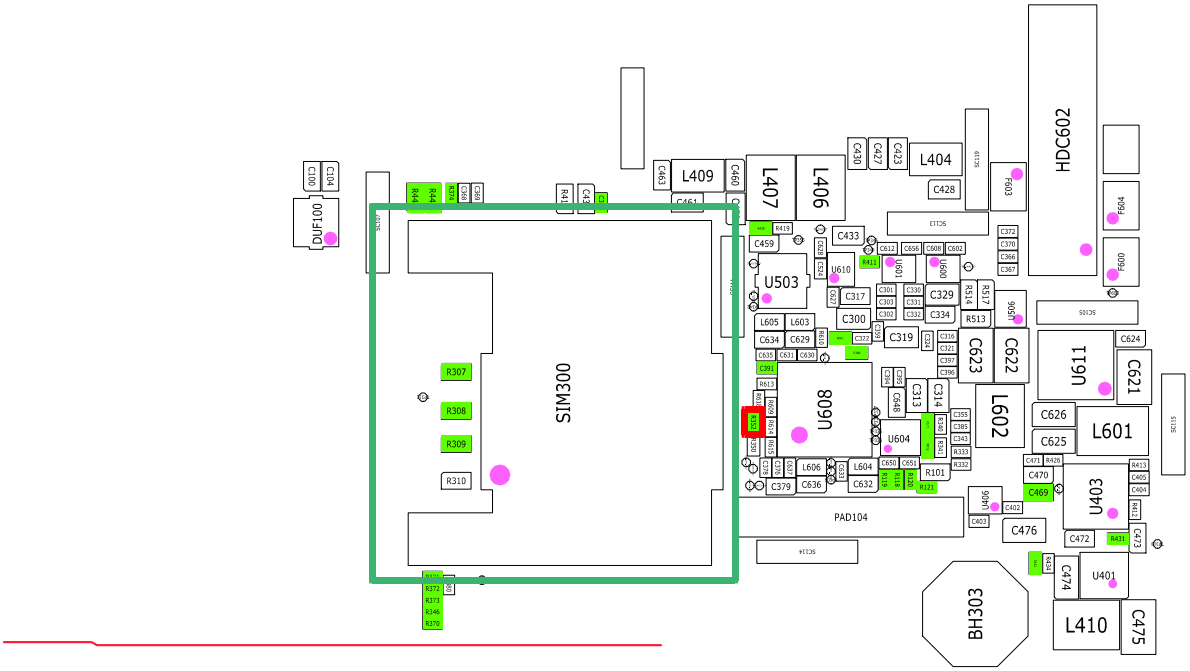
8-3-4. Sim Part


Insert SIM card
Yes
Check the Pin Soldering of SIM300
No
Resoldering and recheck
Yes
Check the SIM Voltage. (R352) >= 1.8 or 3.0?
No
Change to the new SIM card.
If it doesn`t still work SIM card after changeing the SIM card, Check the UCP300 (Crack etc)
Yes
END



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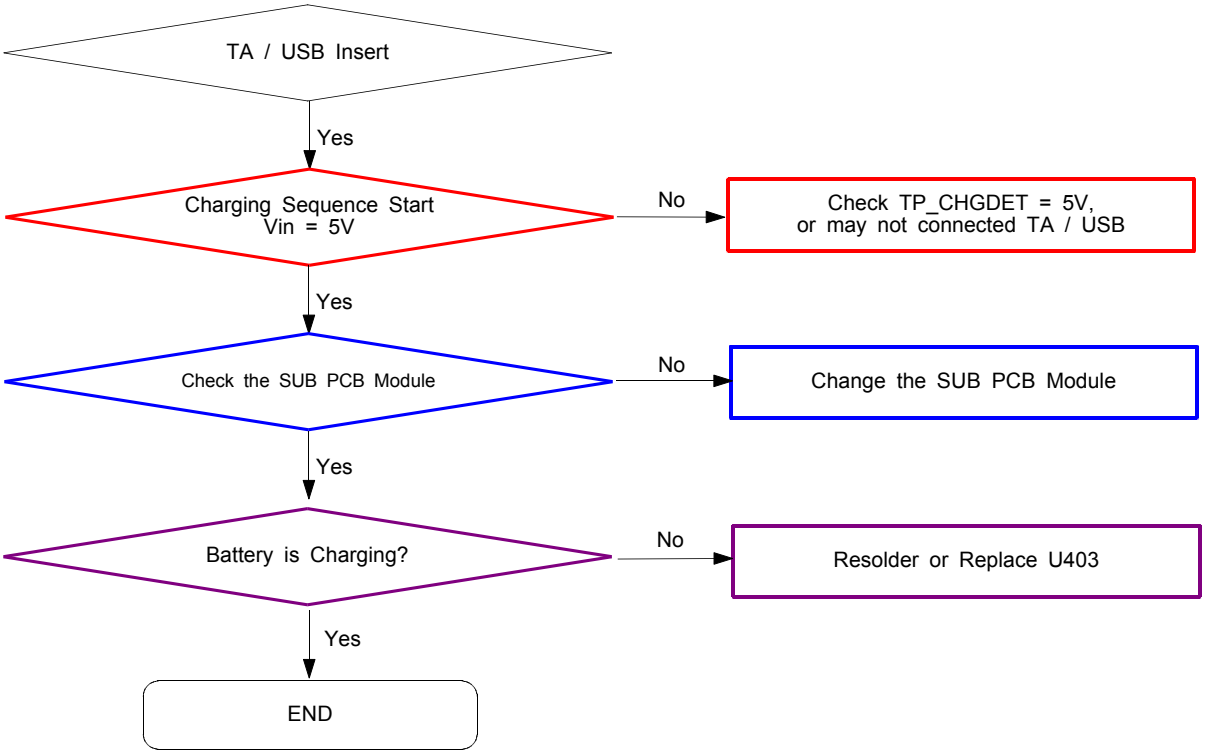
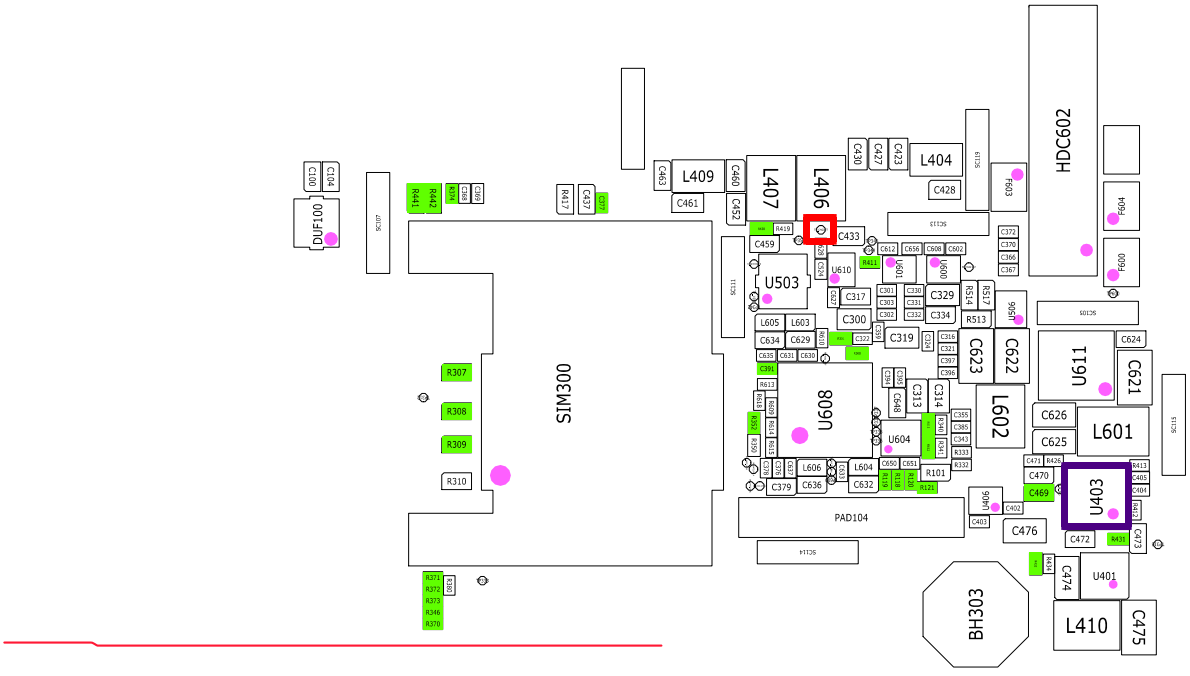
8-3-5. Charging Part





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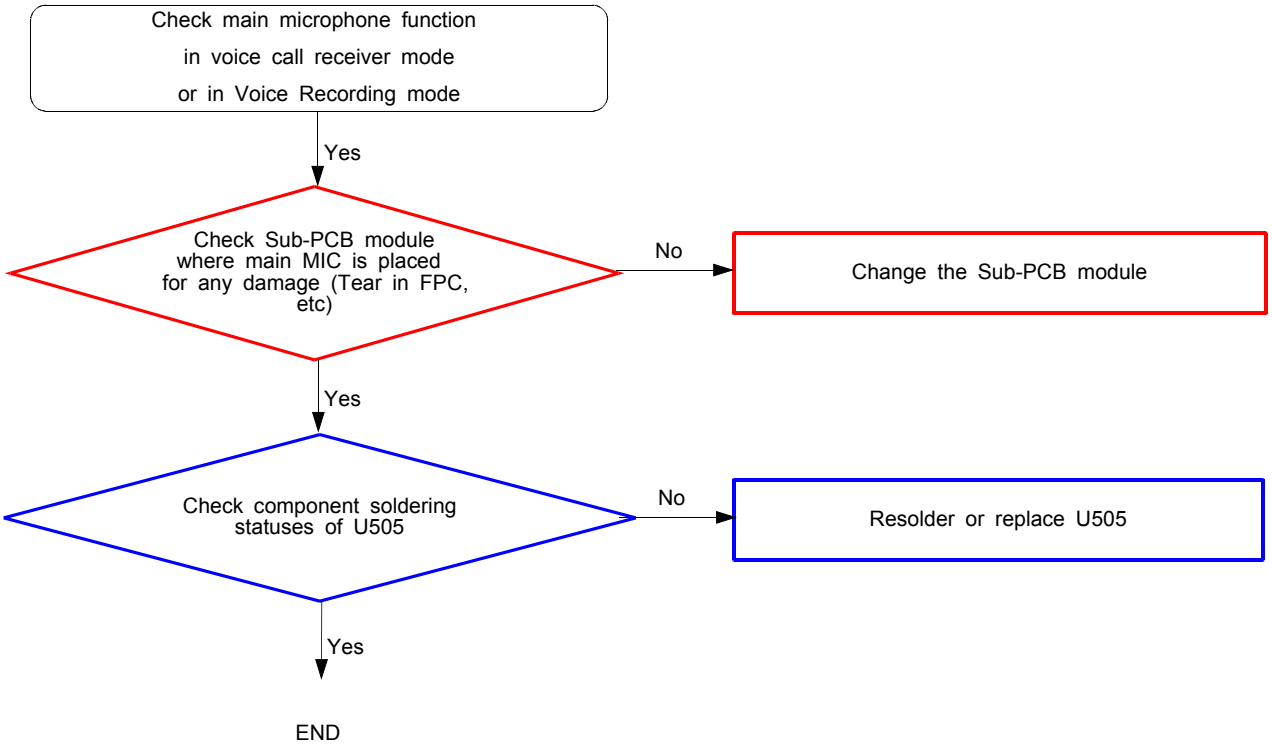
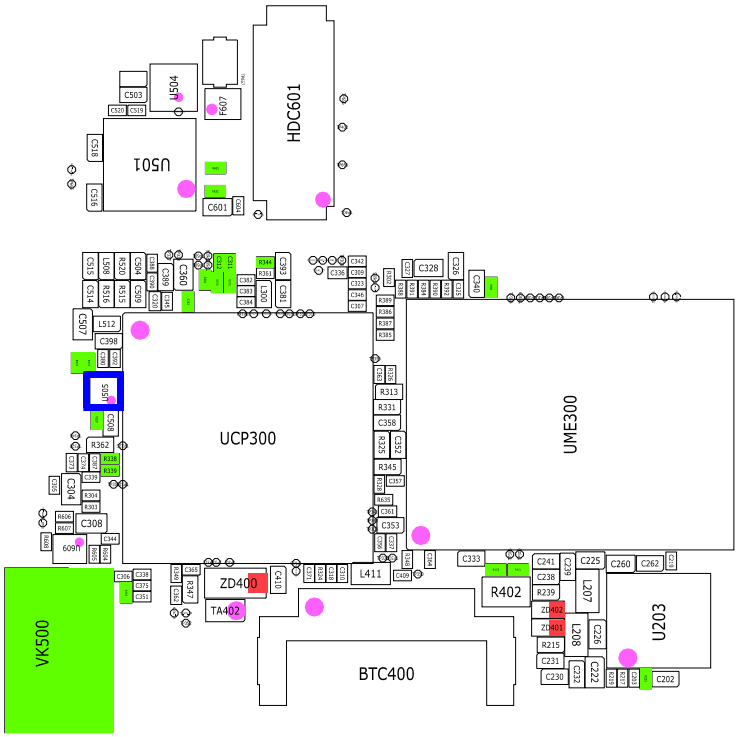
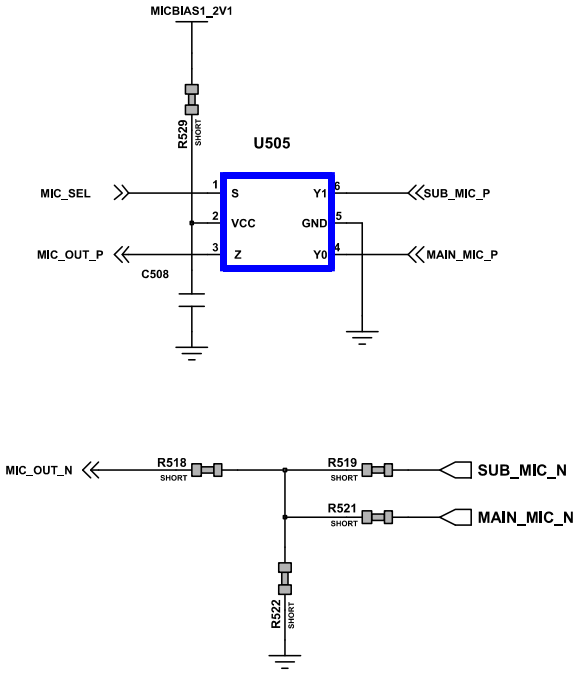
8-3-6. Microphone Part (Main MIC)







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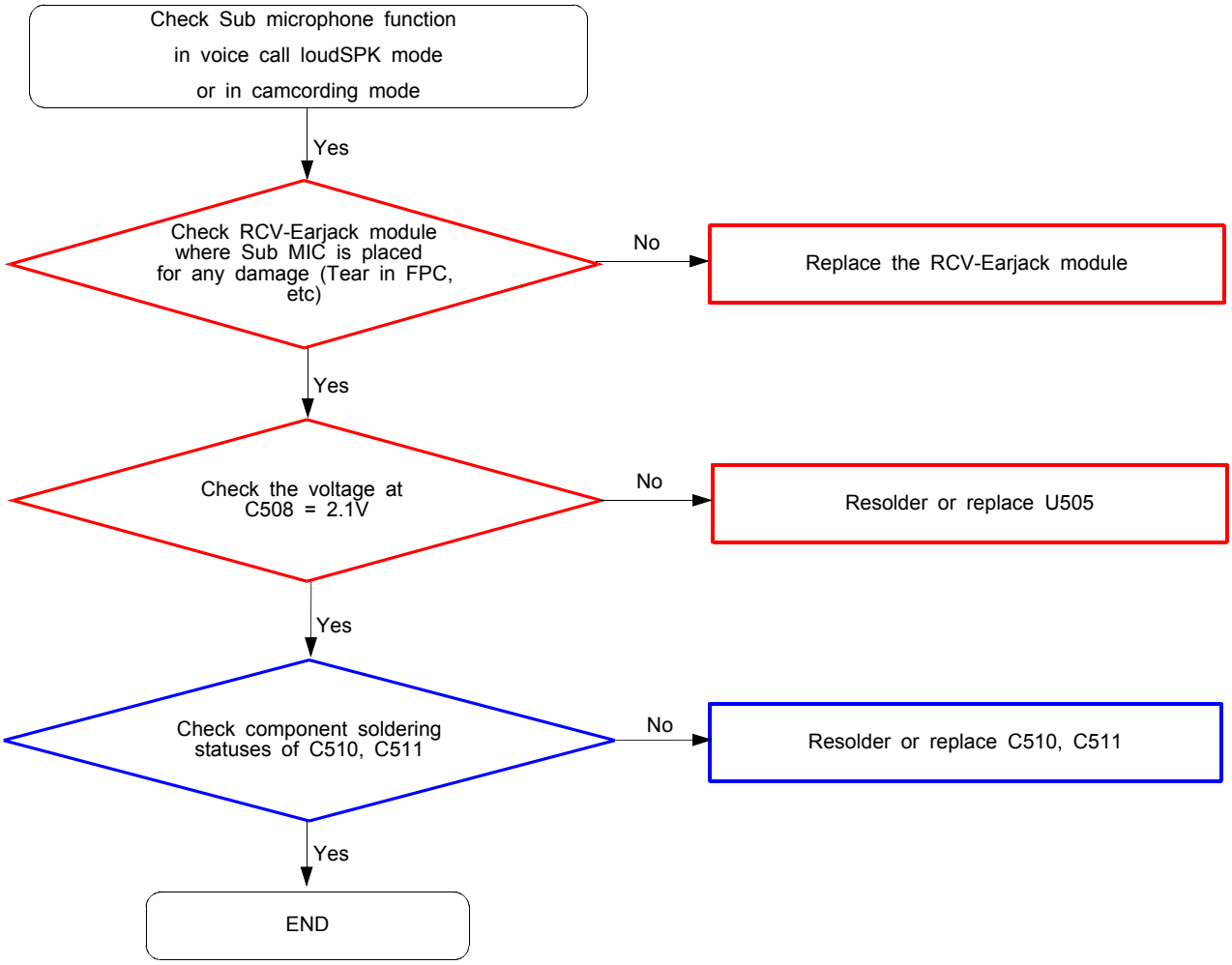
8-3-6-1. Microphone Part (Sub MIC)



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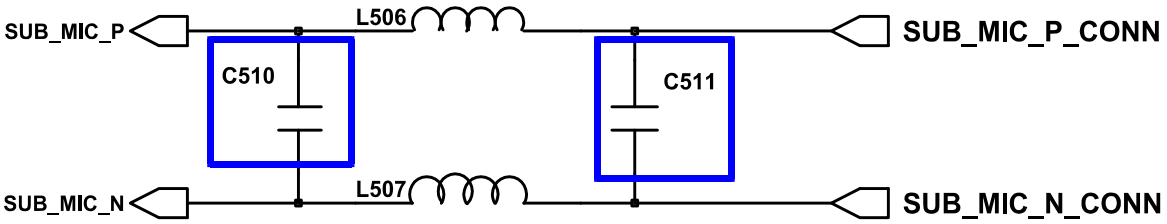

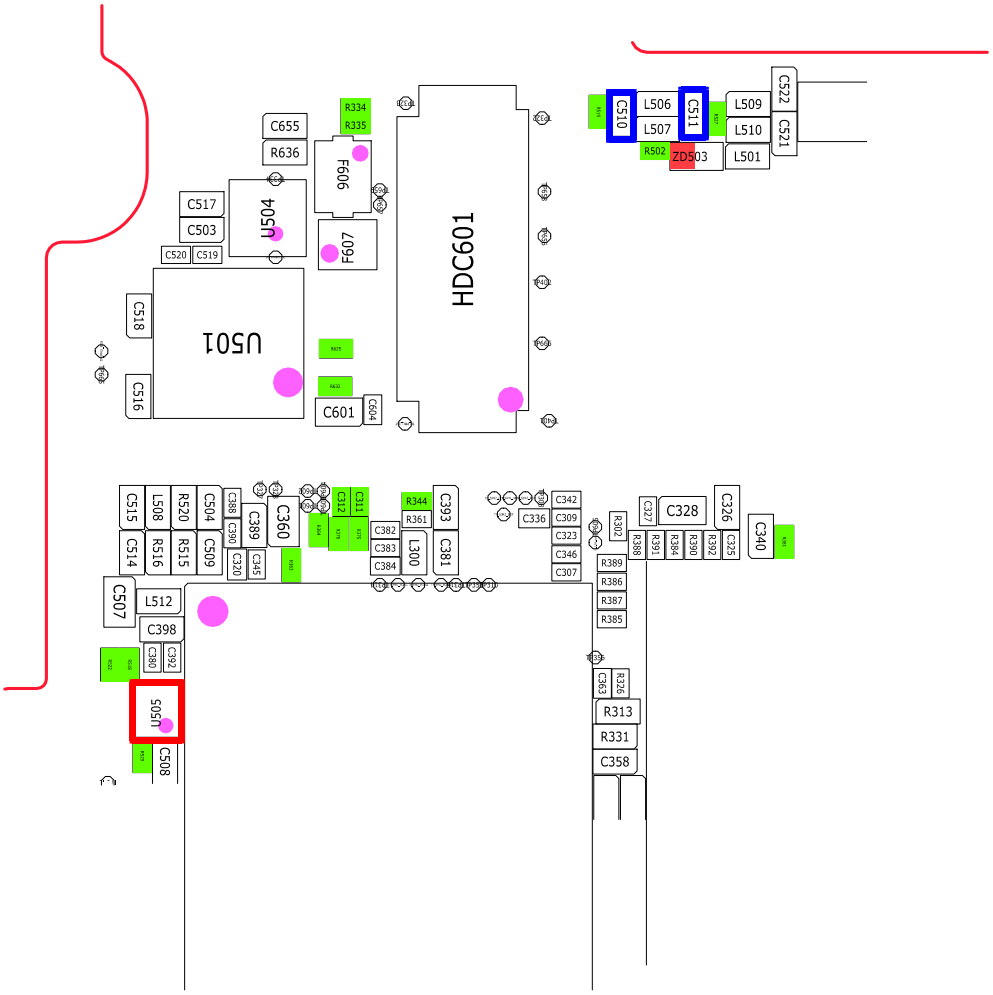

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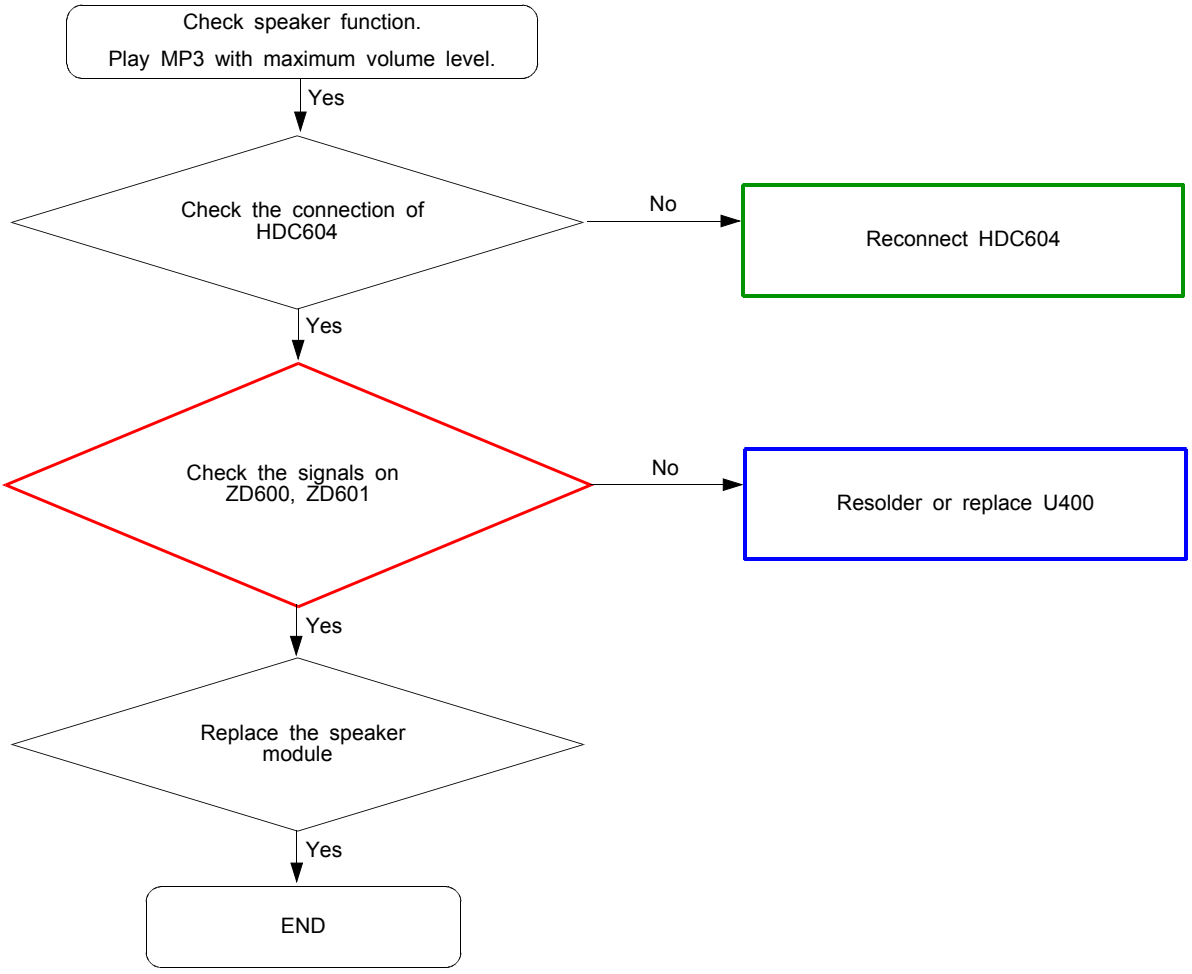
8-3-7. Speaker Part



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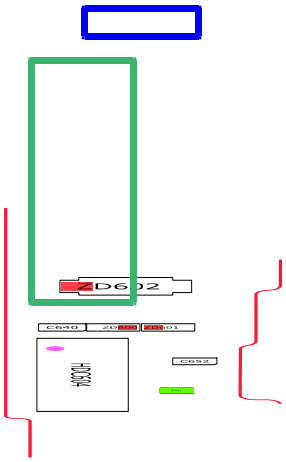

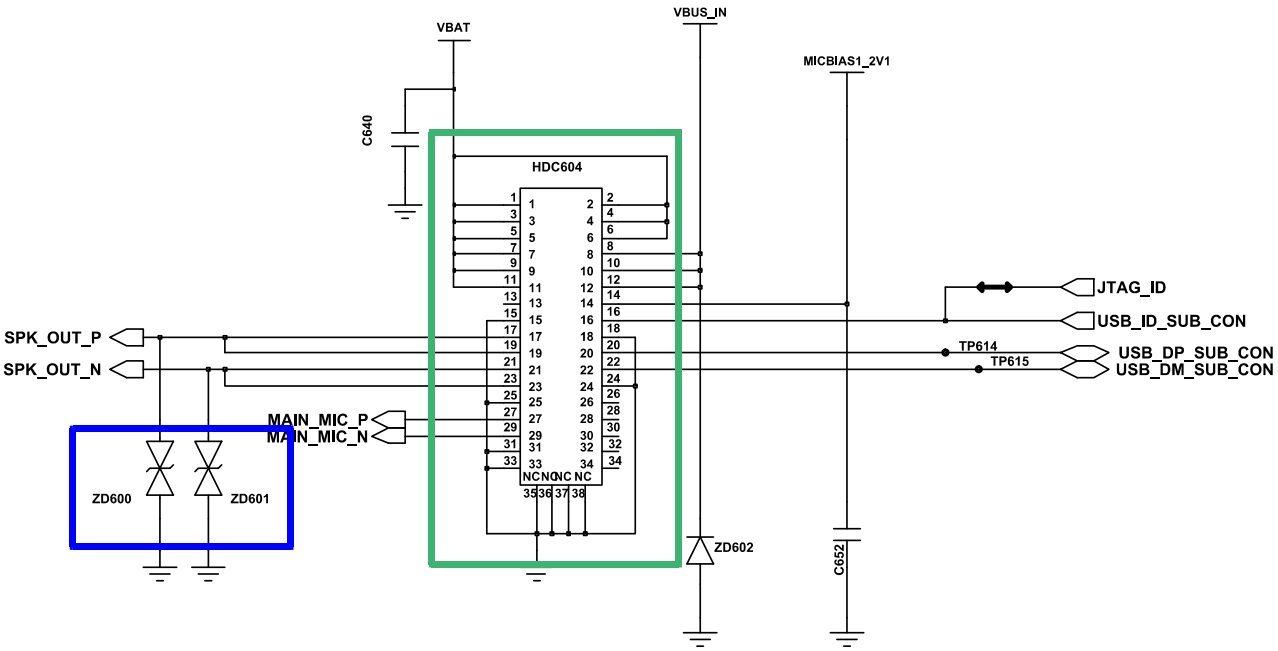

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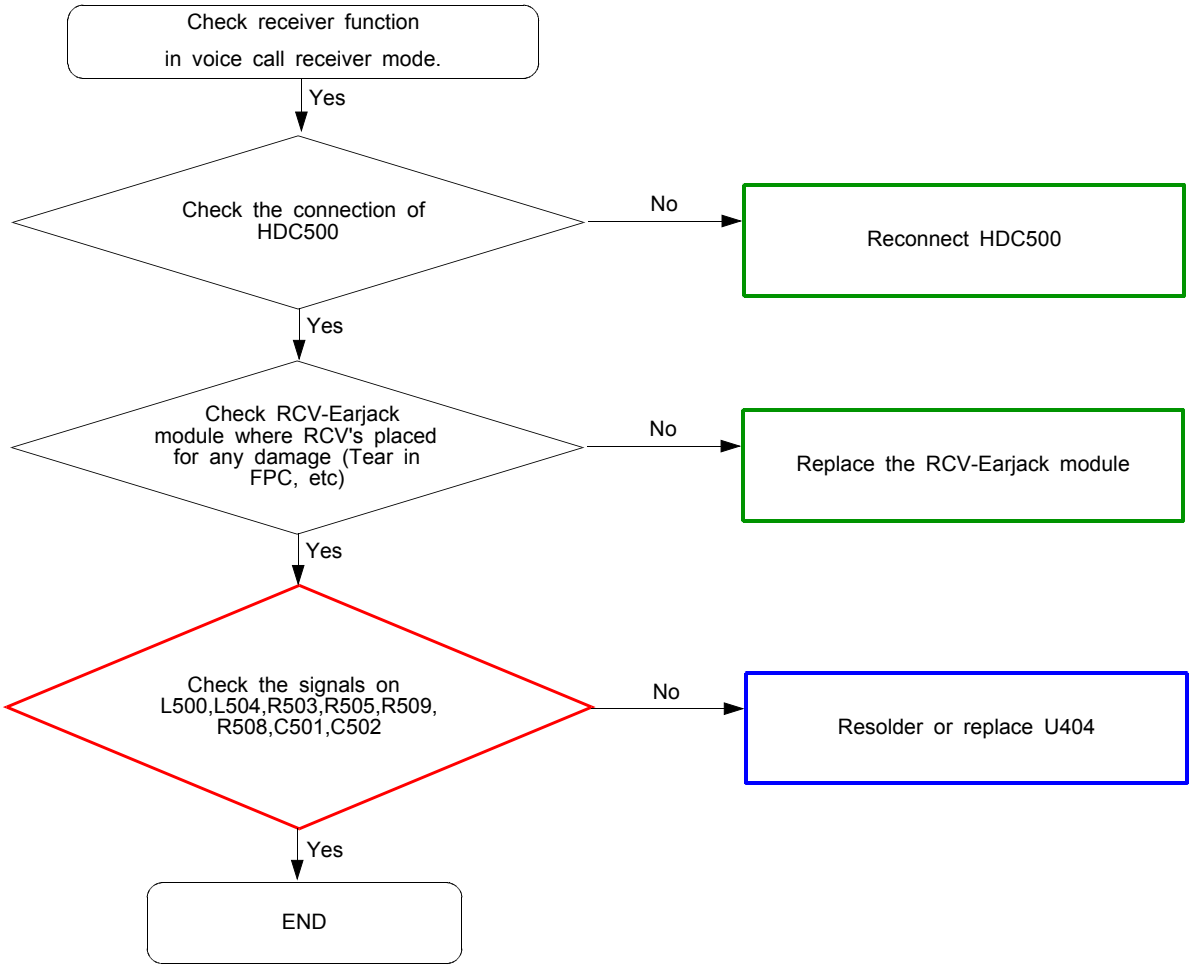
8-3-7. Receiver Part



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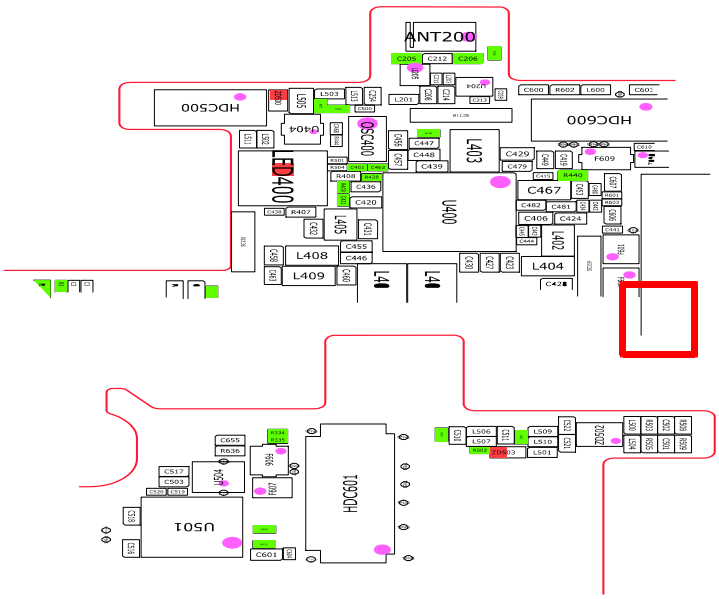

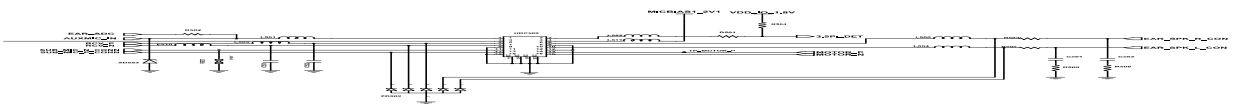

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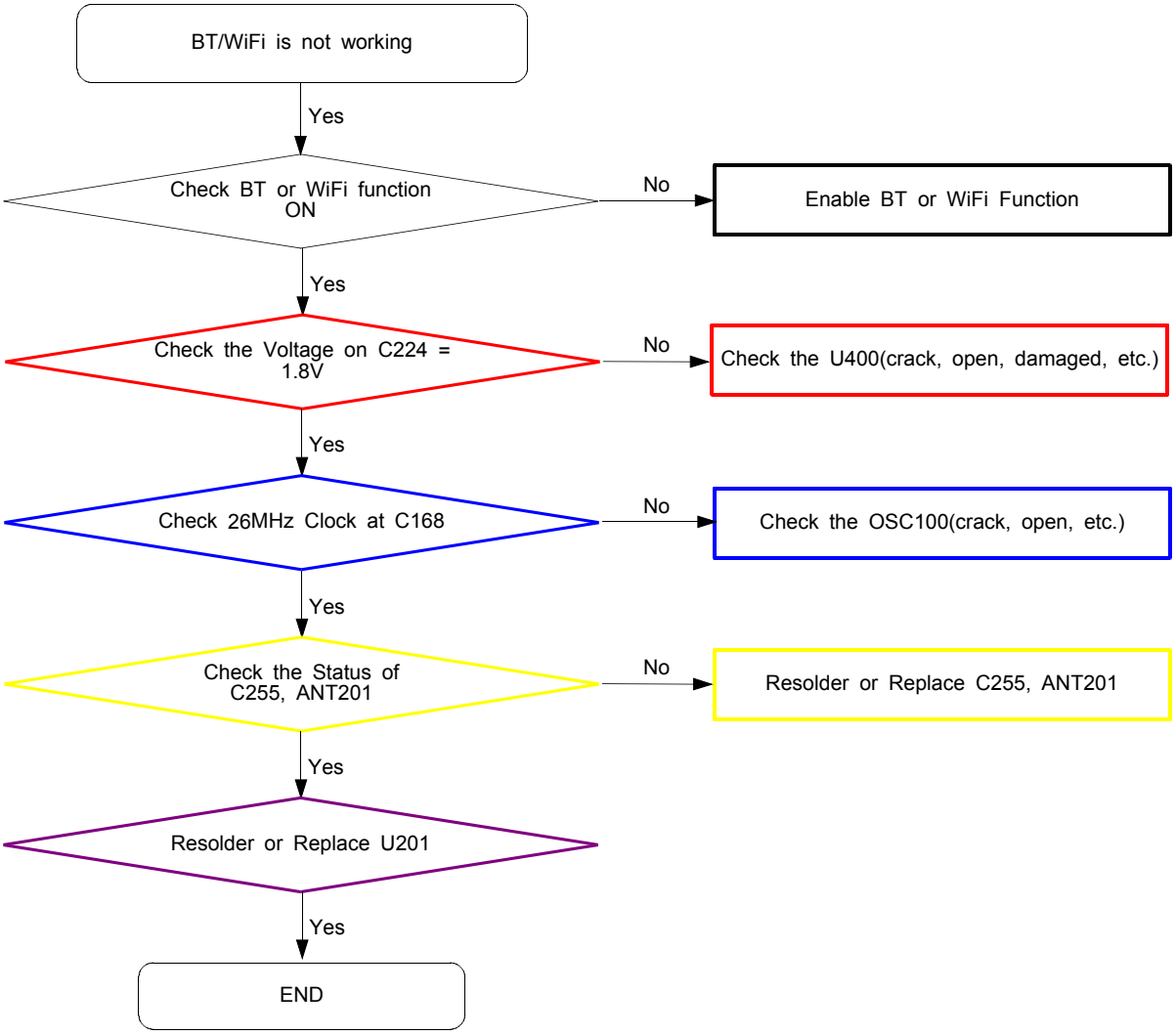
8-3-8. BT/WIFI



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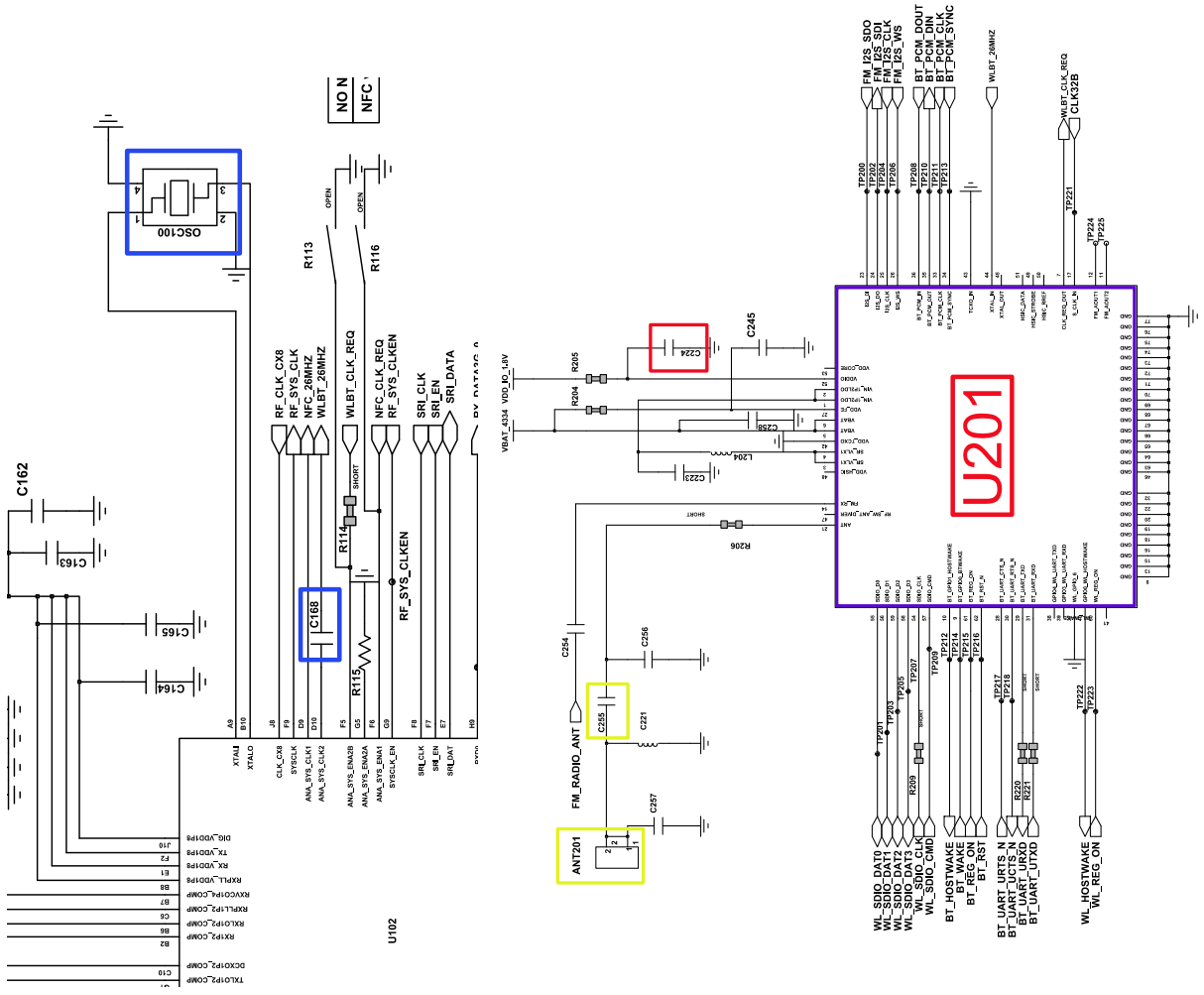

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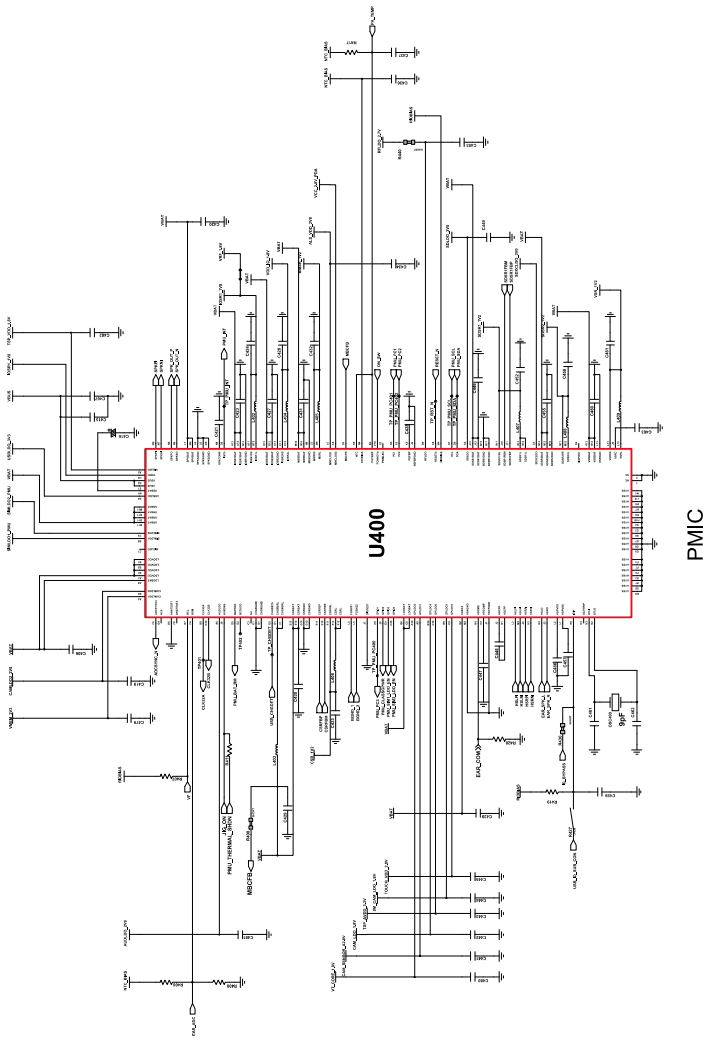

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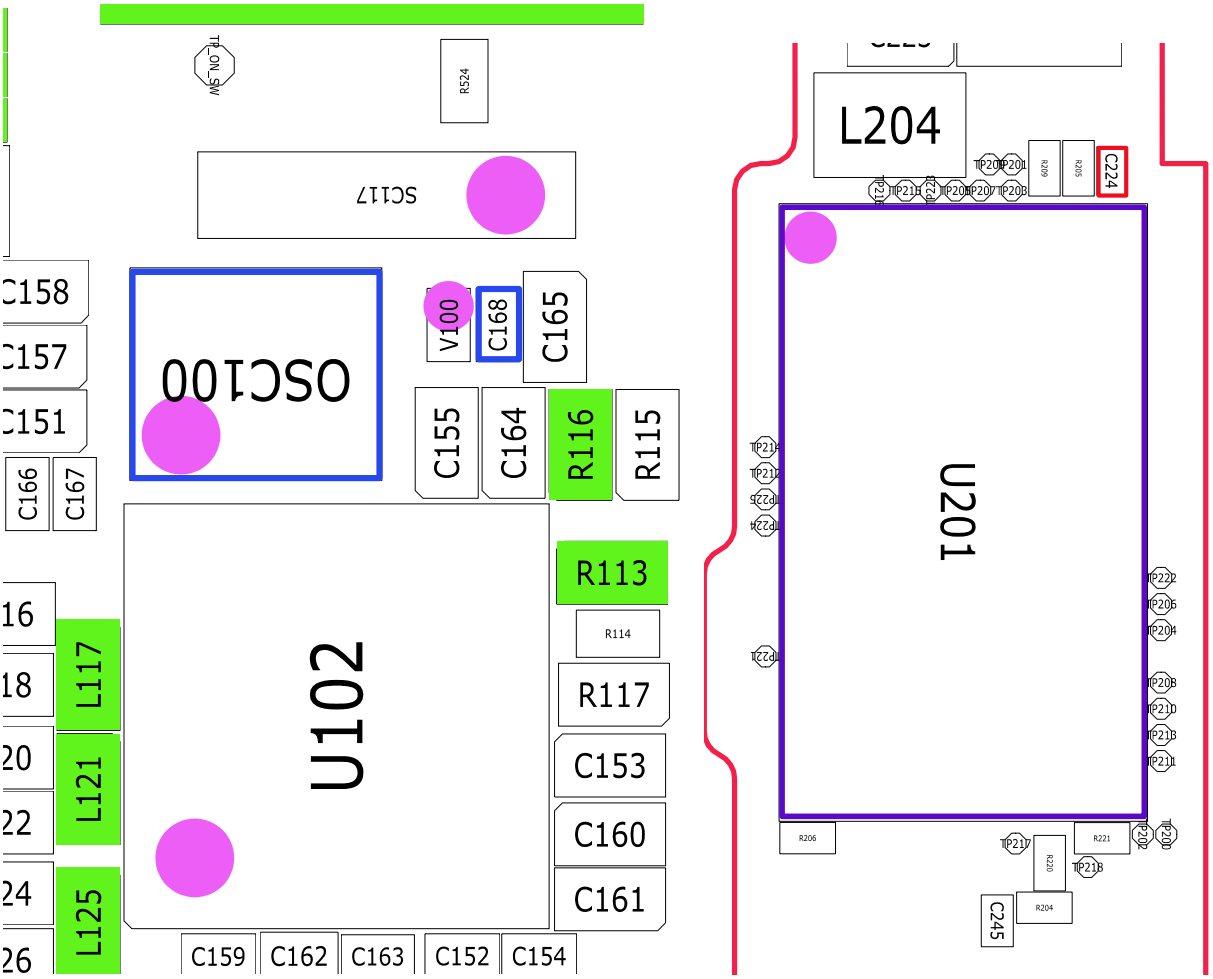

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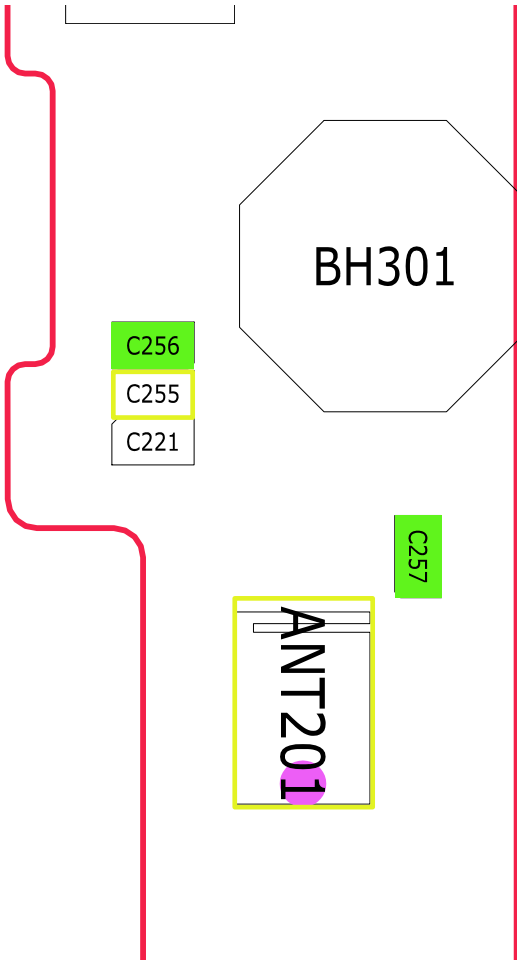

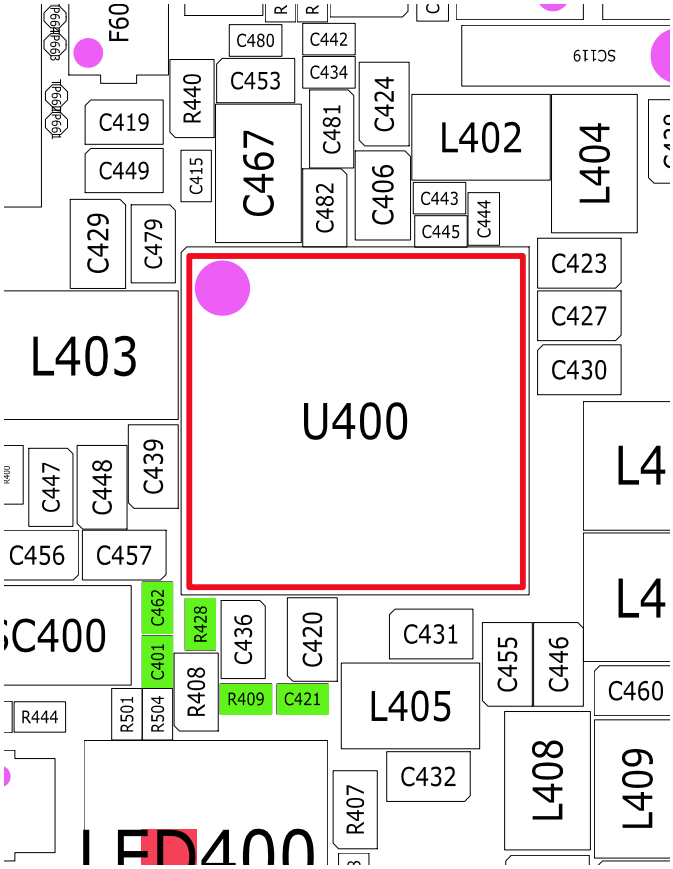

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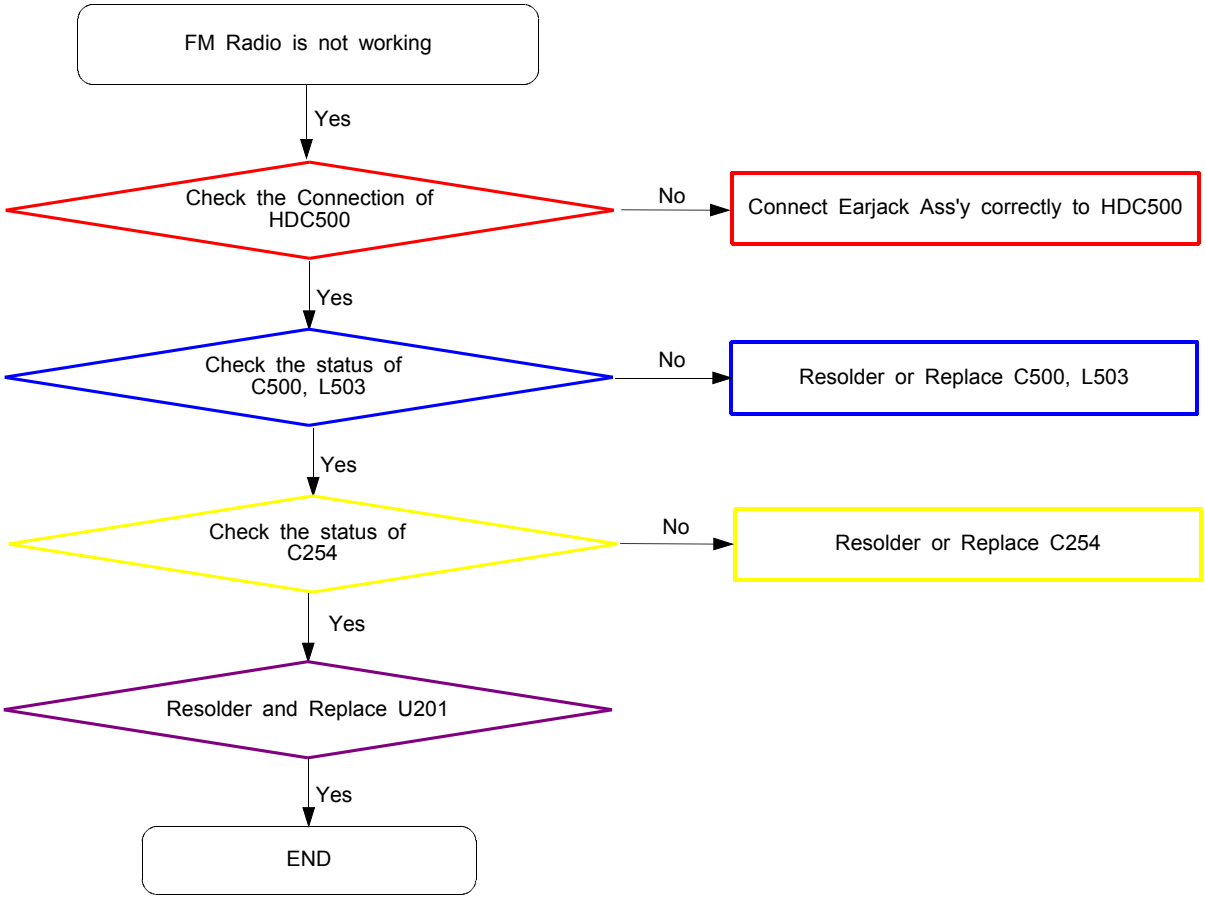
8-3-9. FM RADIO



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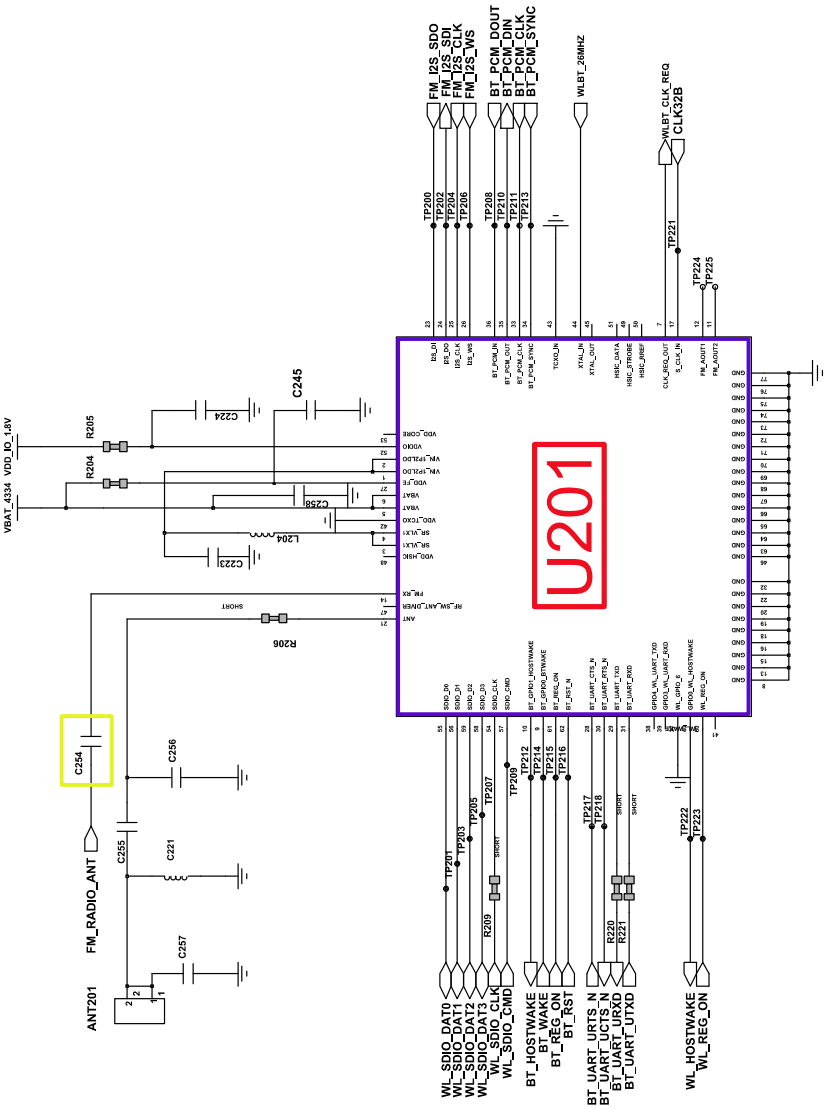

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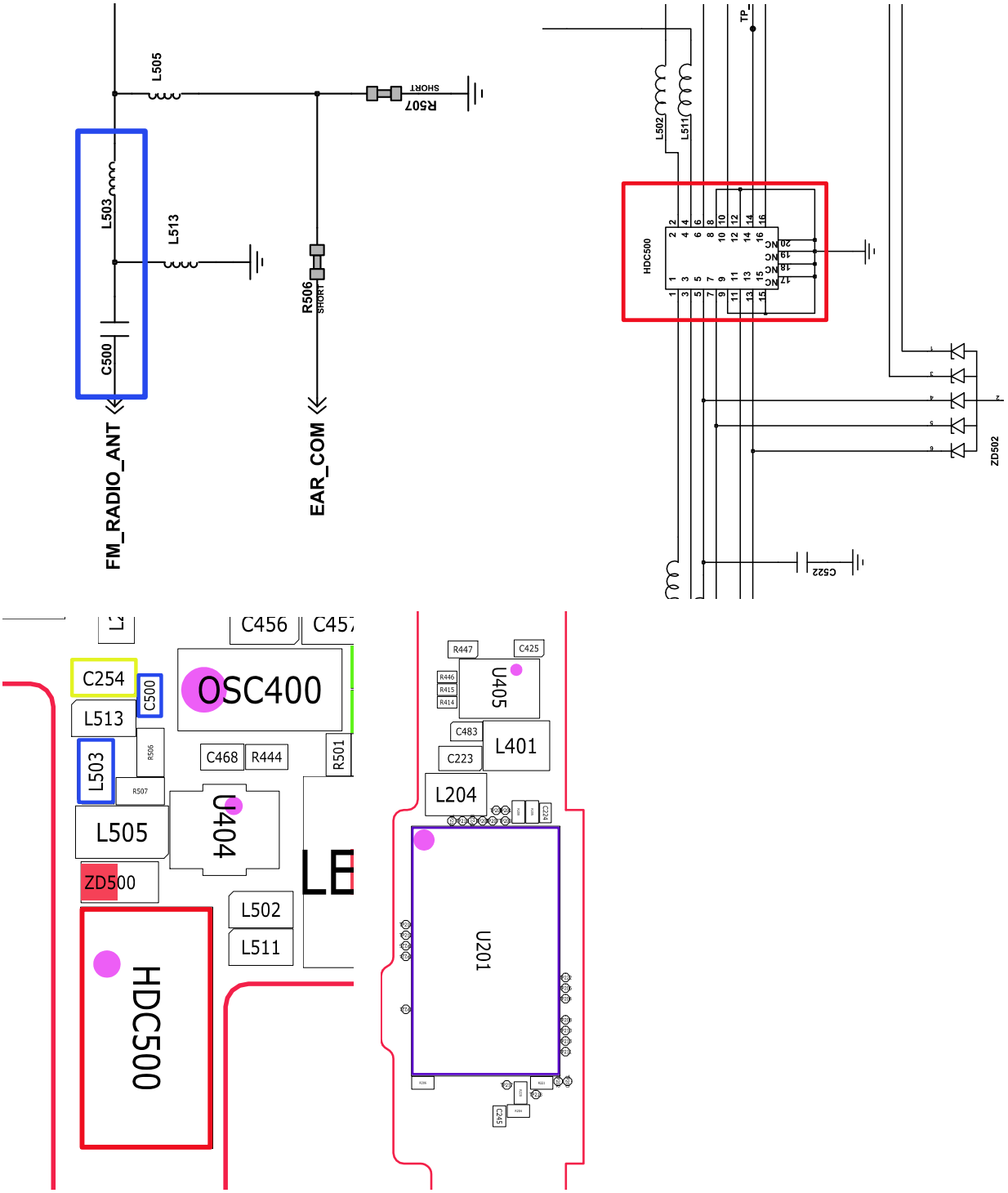

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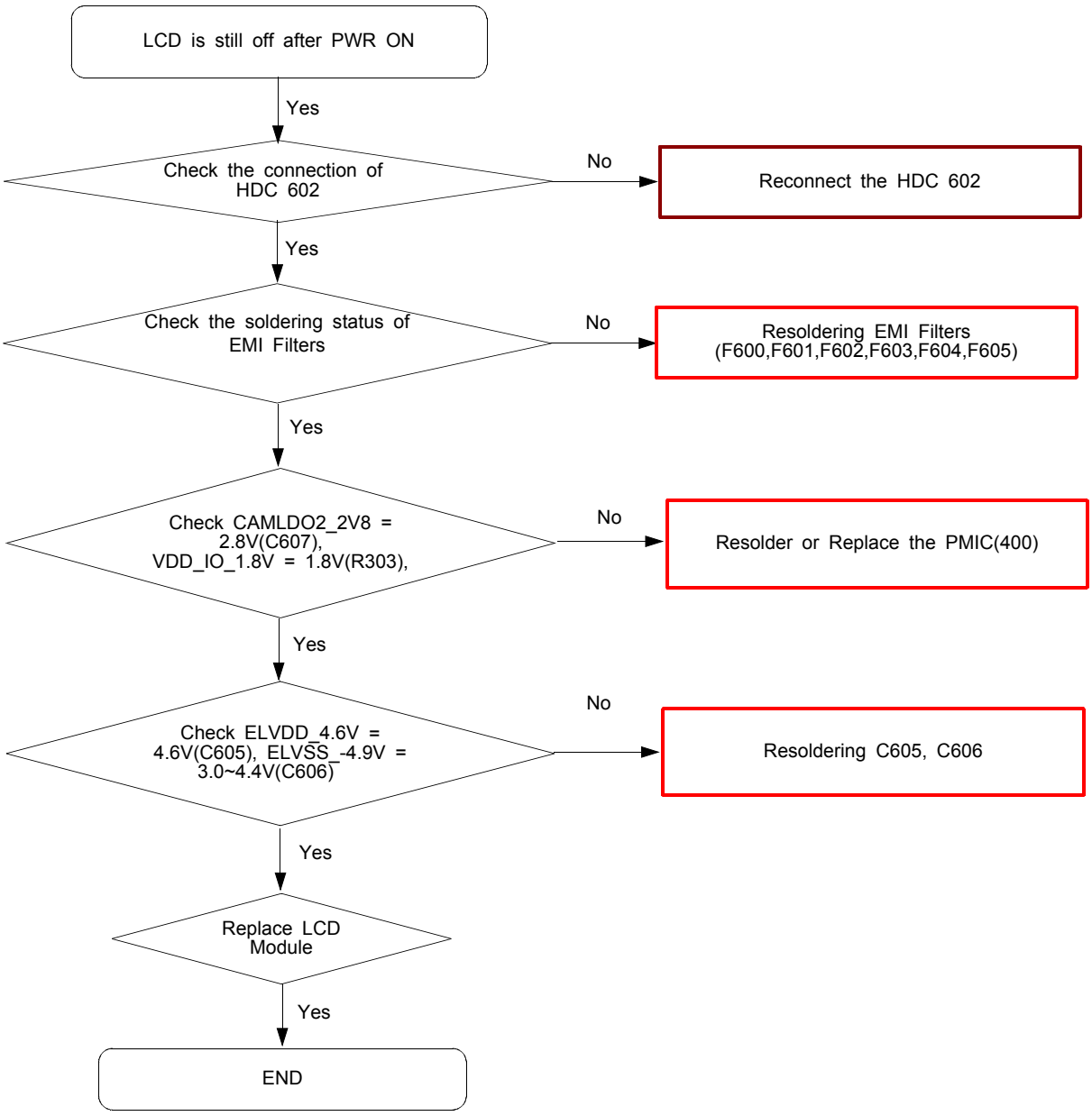
8-3-10. LCD



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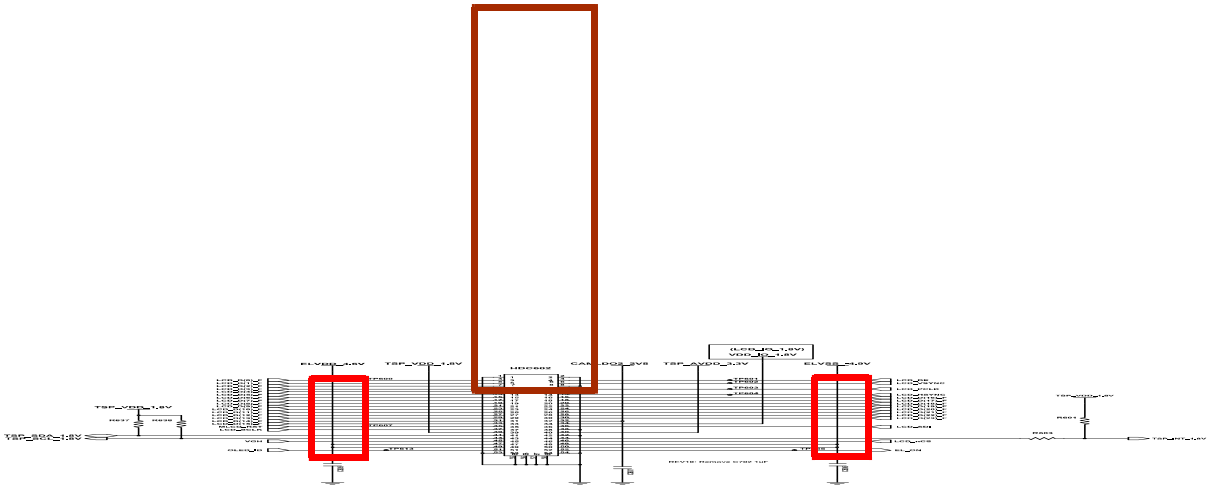

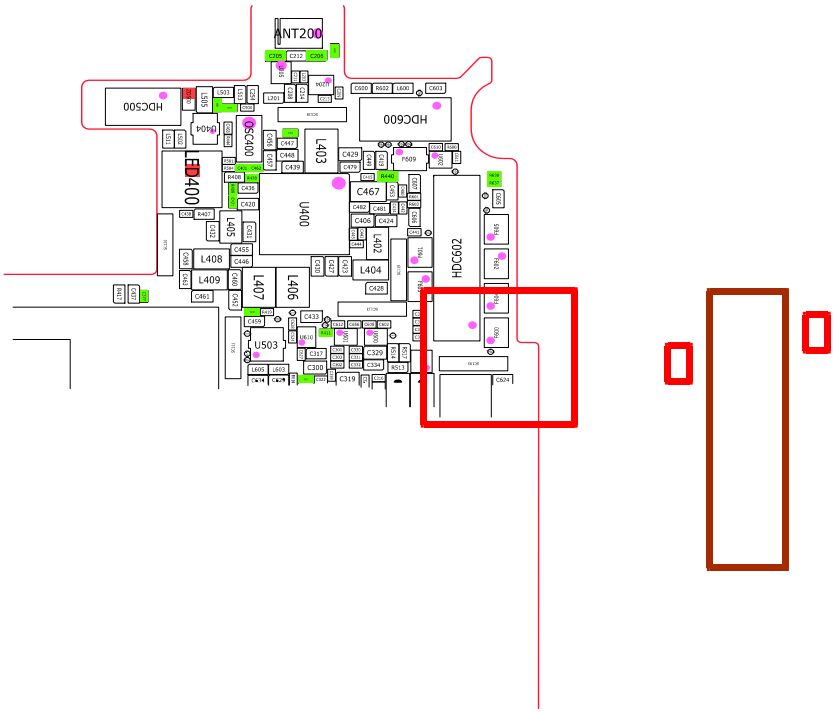

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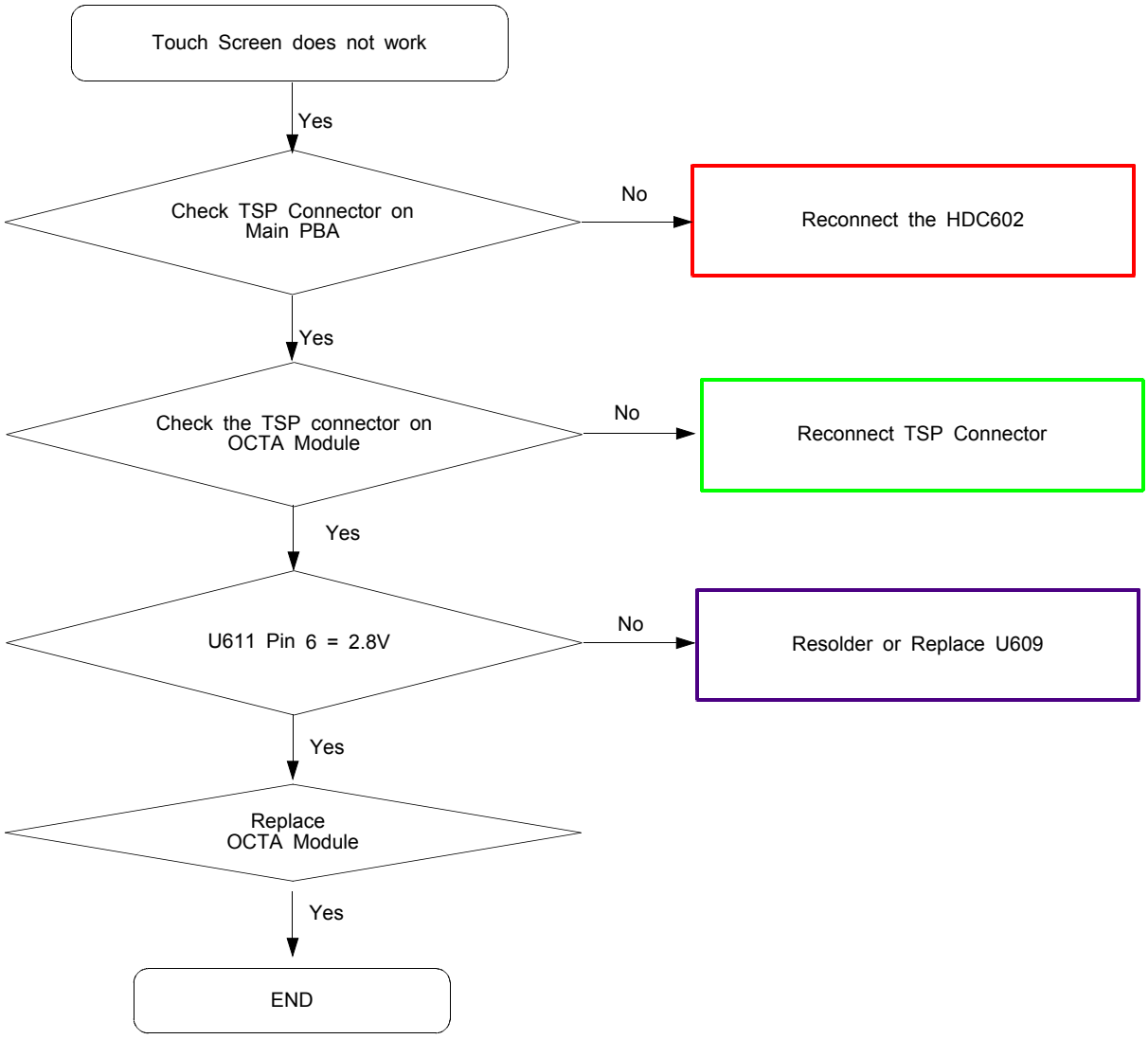
8-3-11. TSP



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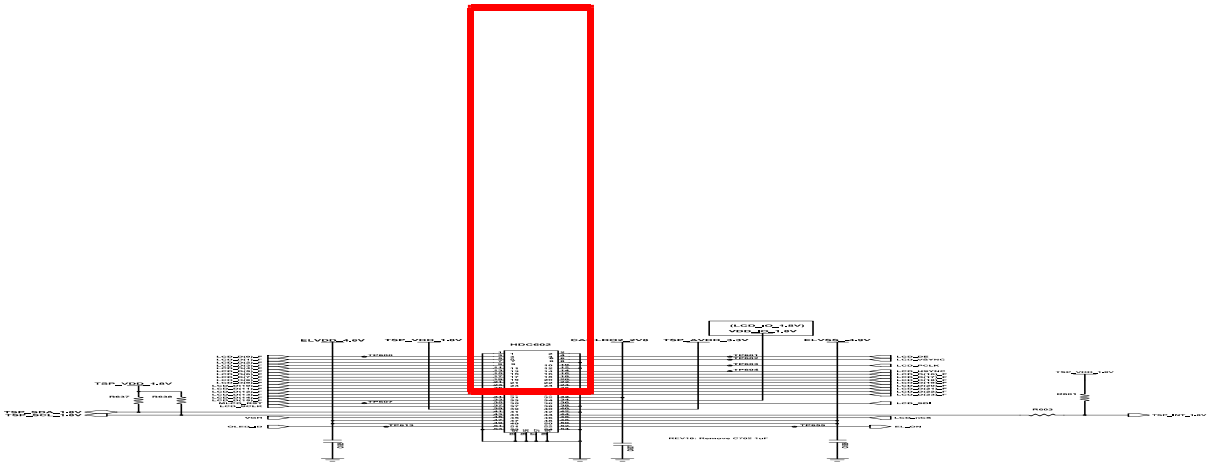

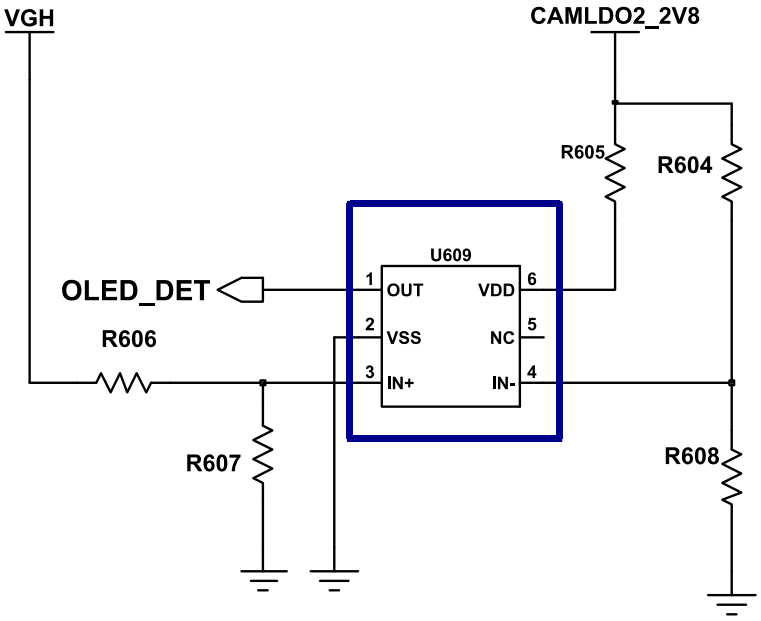

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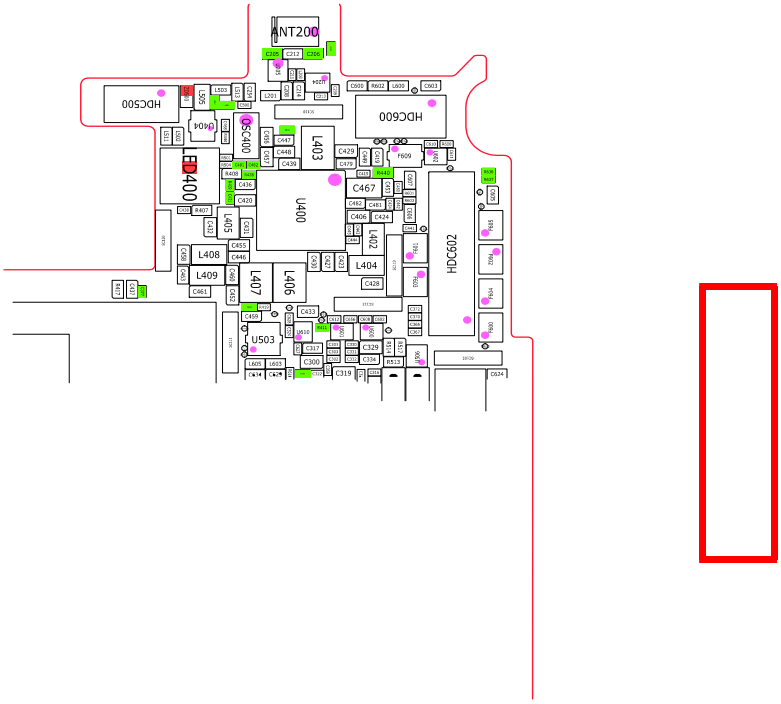

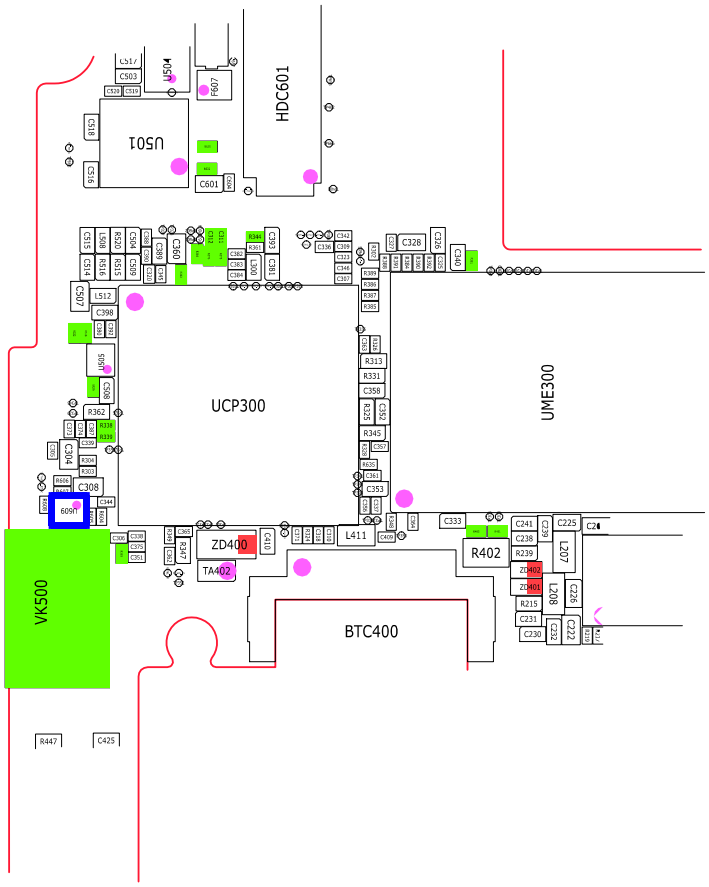

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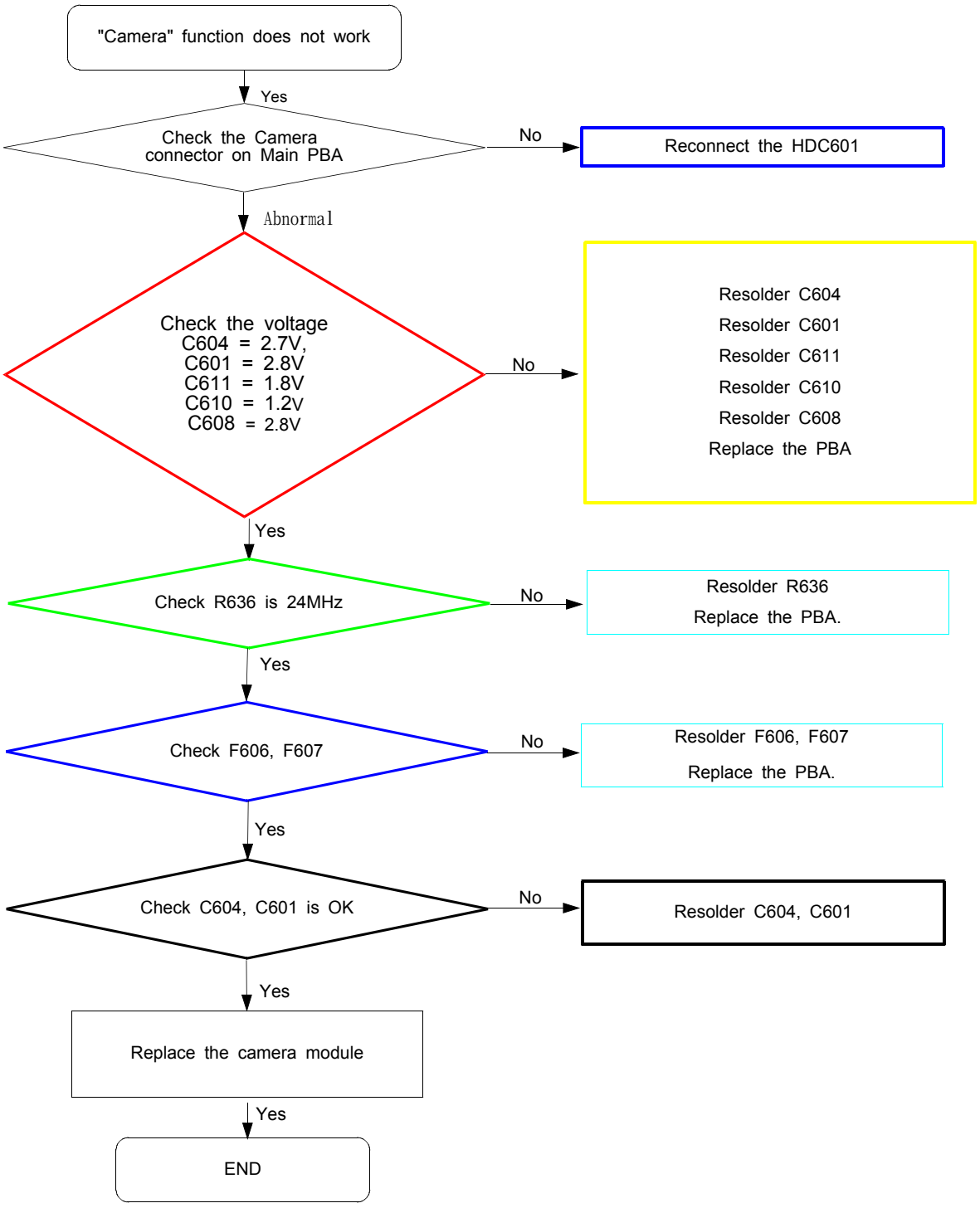
8-3-12. 8M CAM



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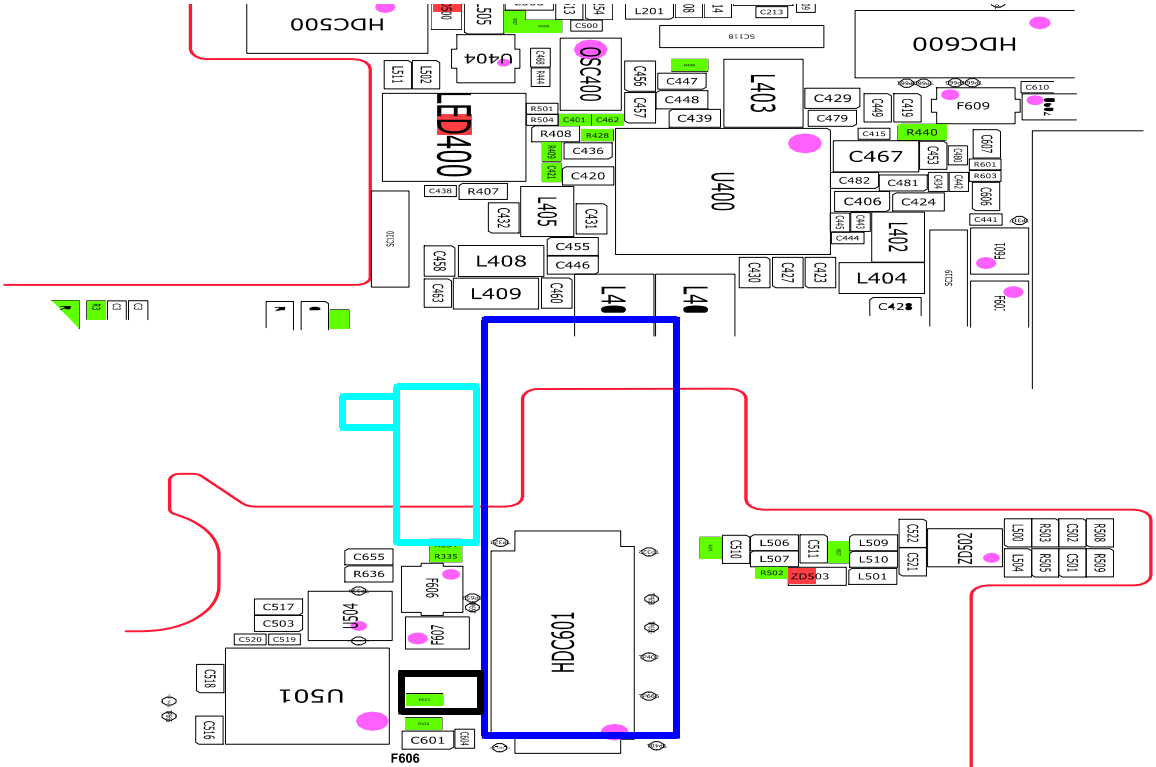

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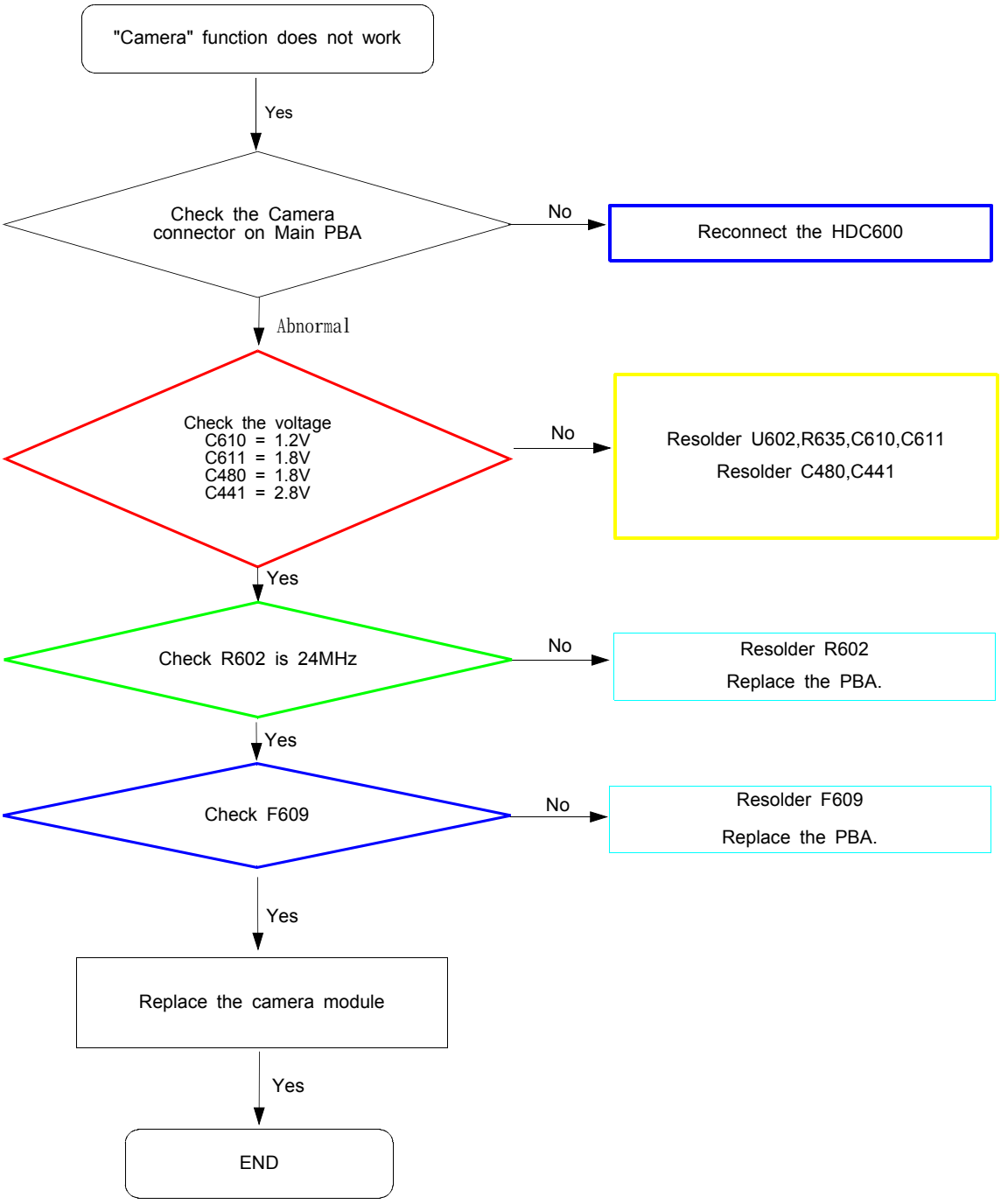
8-3-13. 2M CAM



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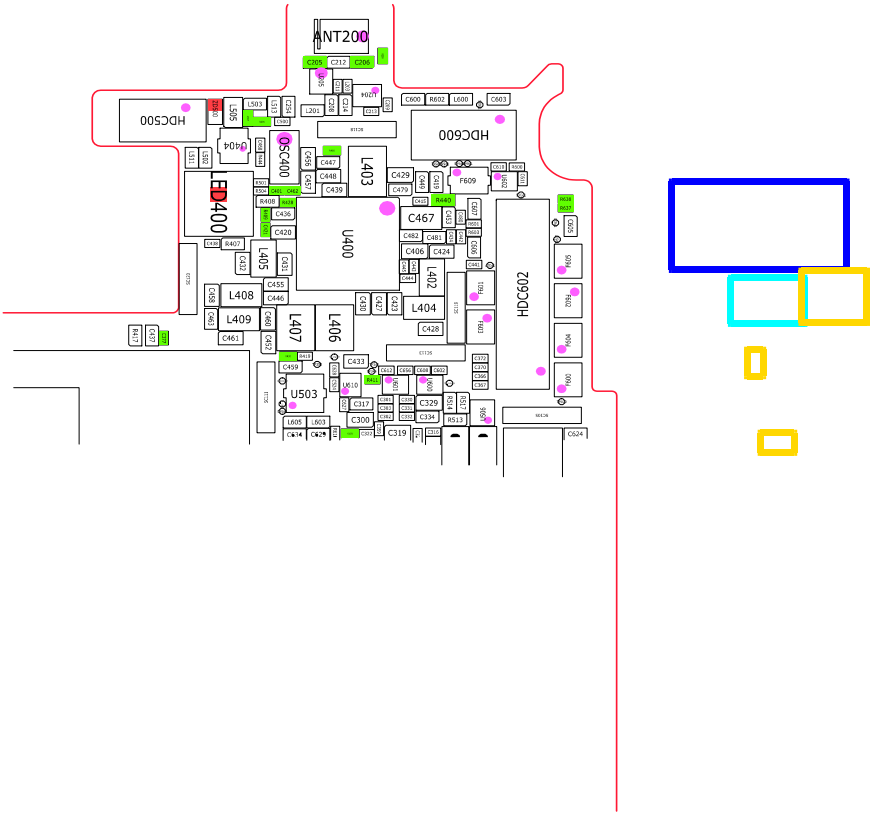

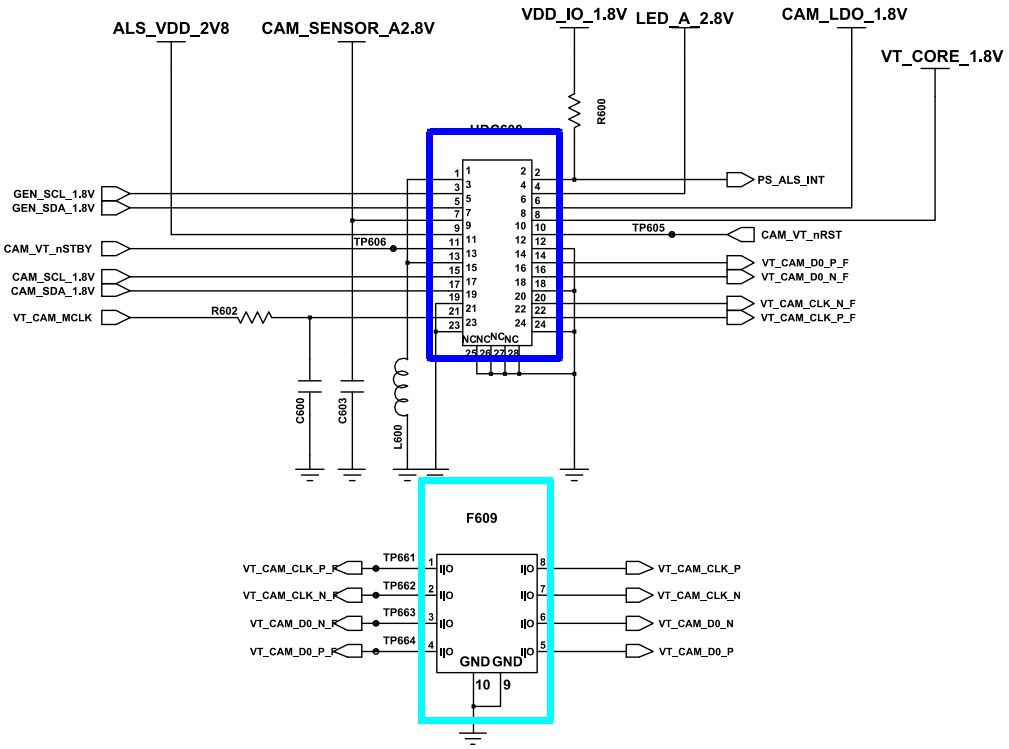

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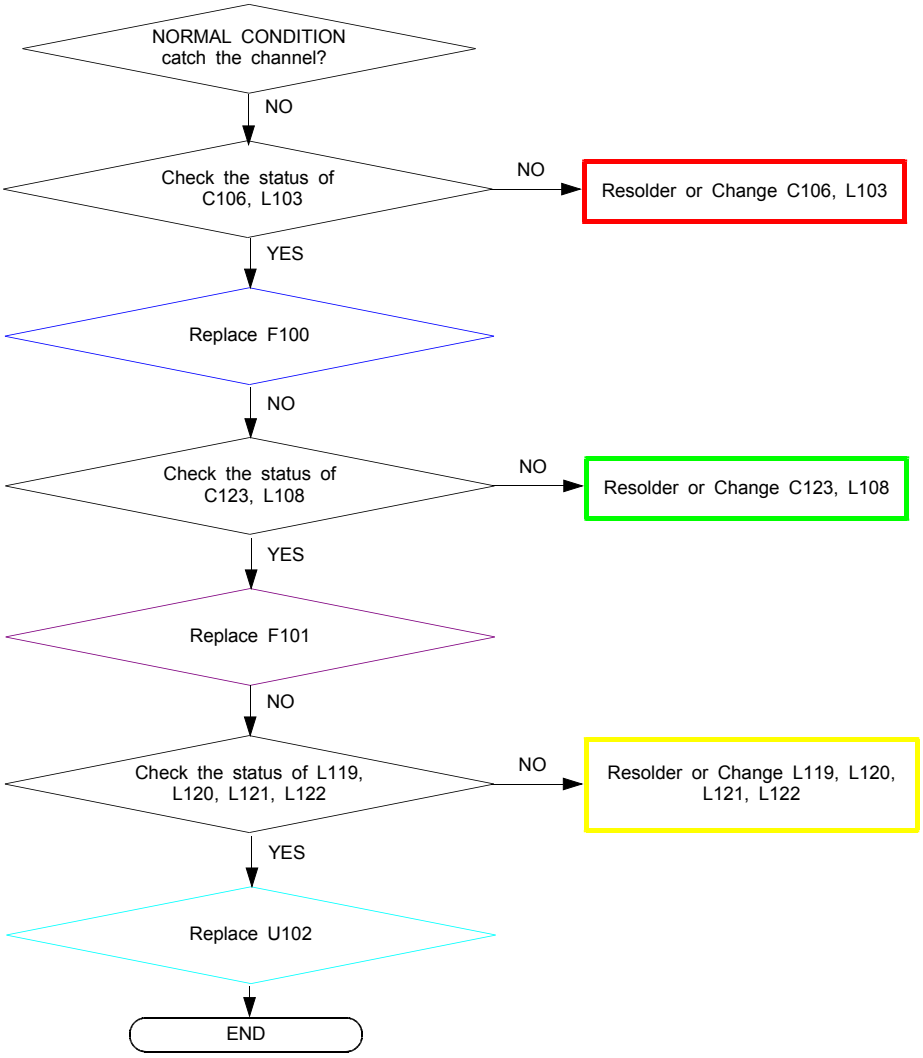
8-3-12. GSM1800 RX



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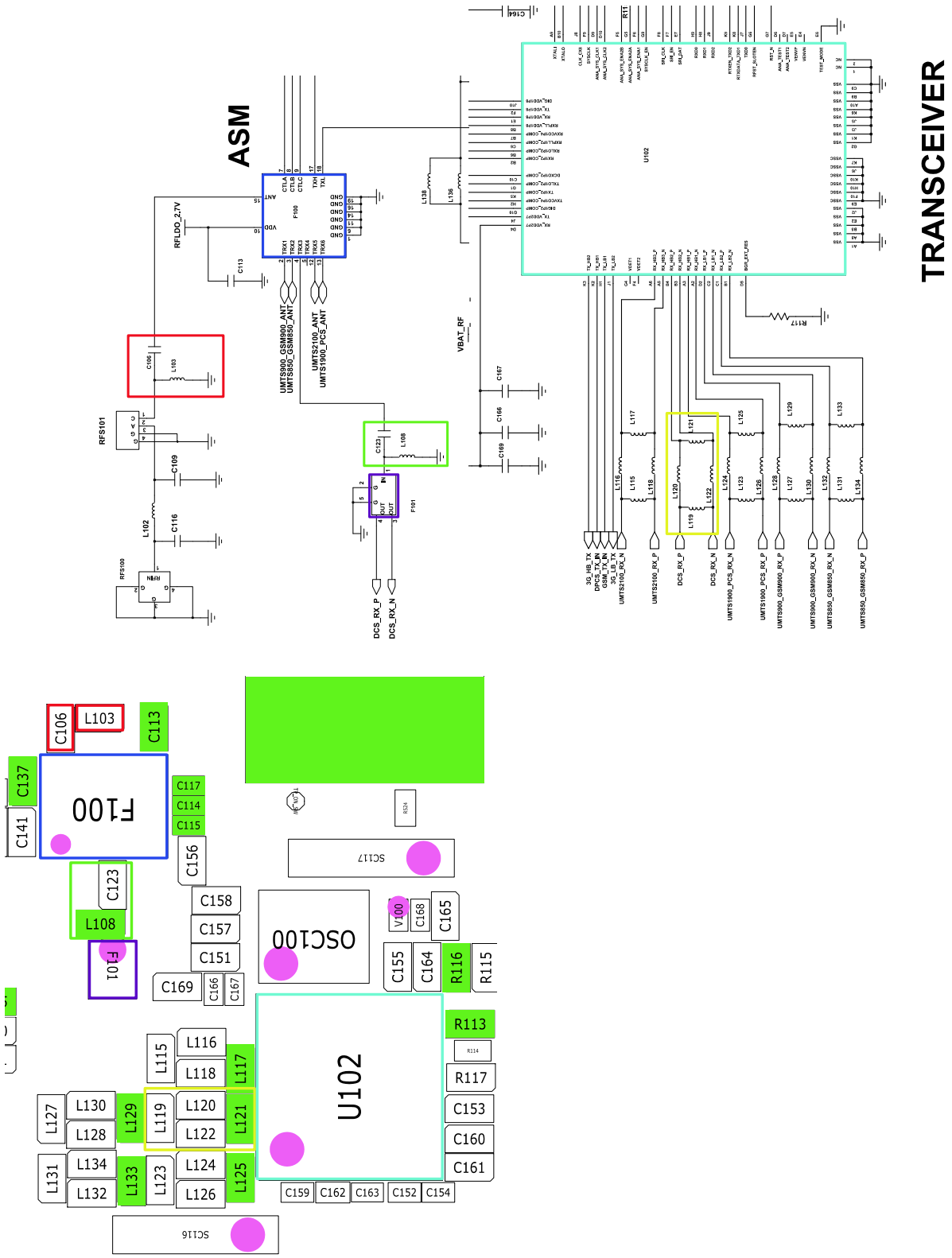

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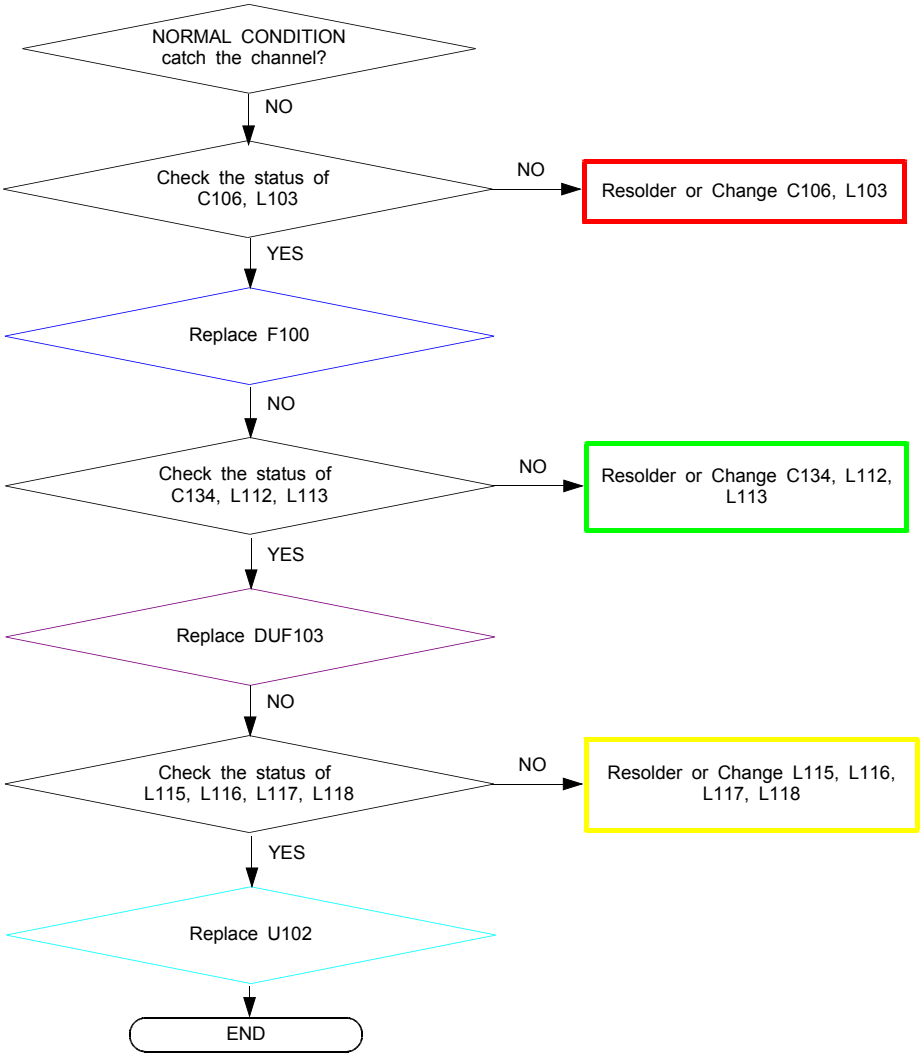
8-3-13. WCDMA Band1 RX



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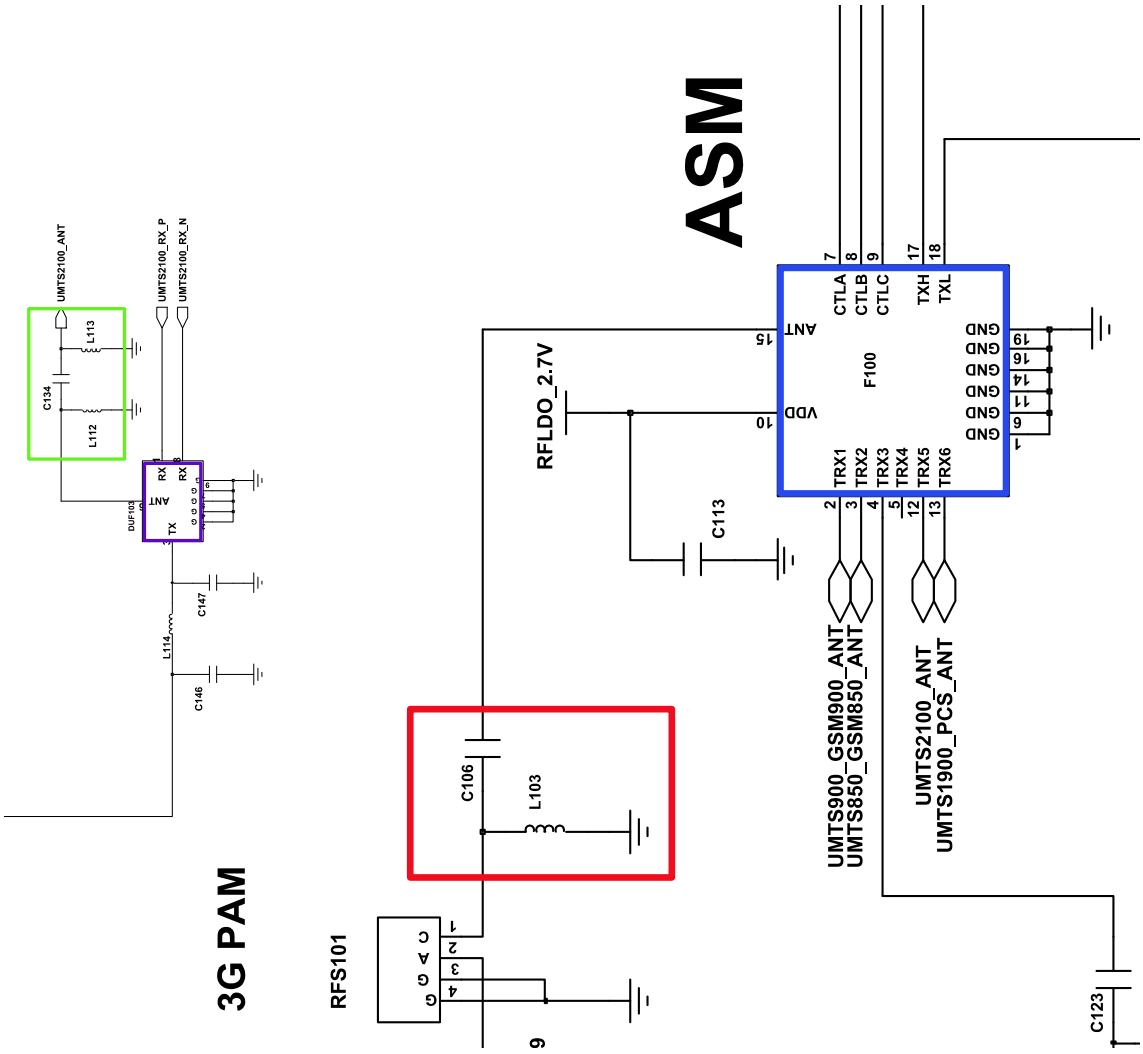

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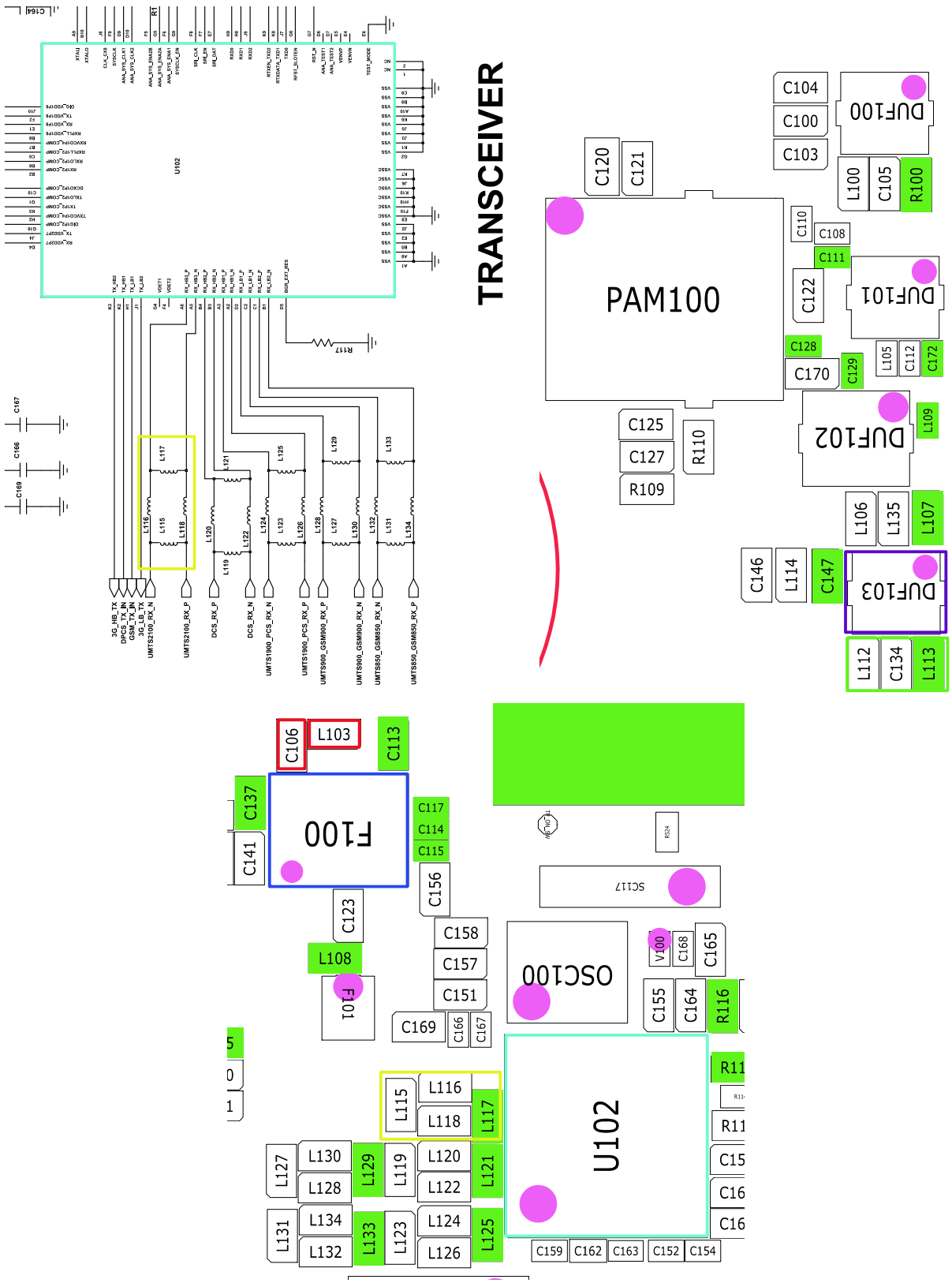

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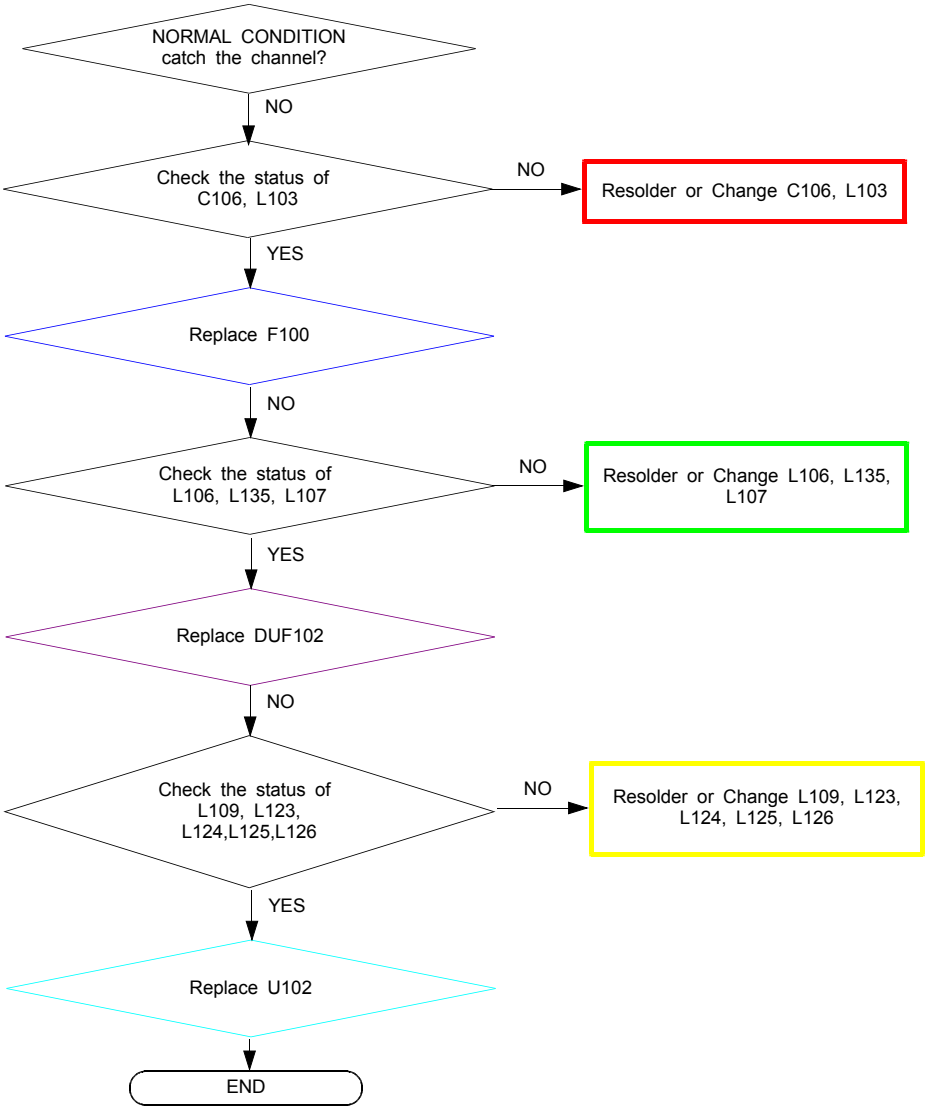
8-3-14. WCDMA Band2 / GSM1900 RX



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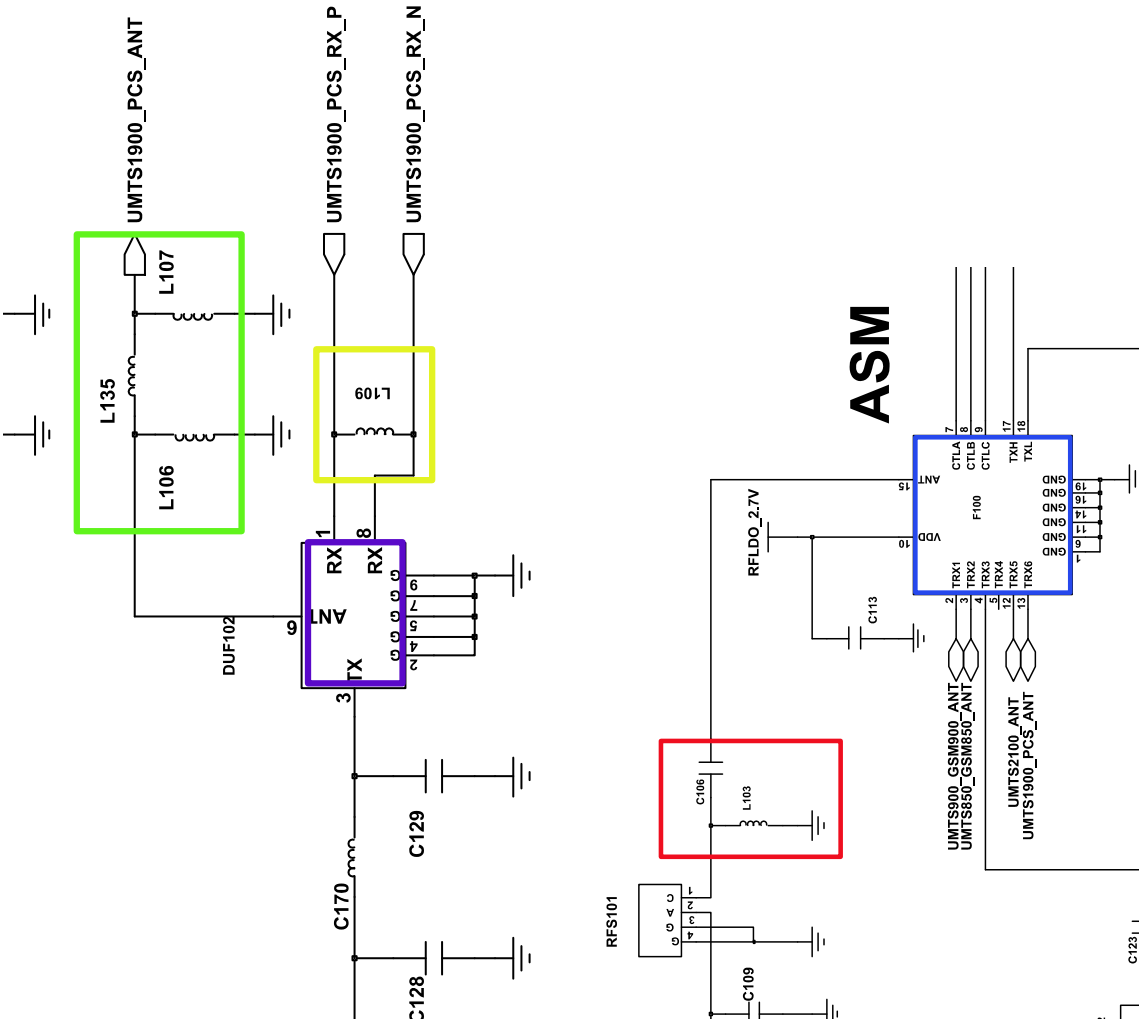

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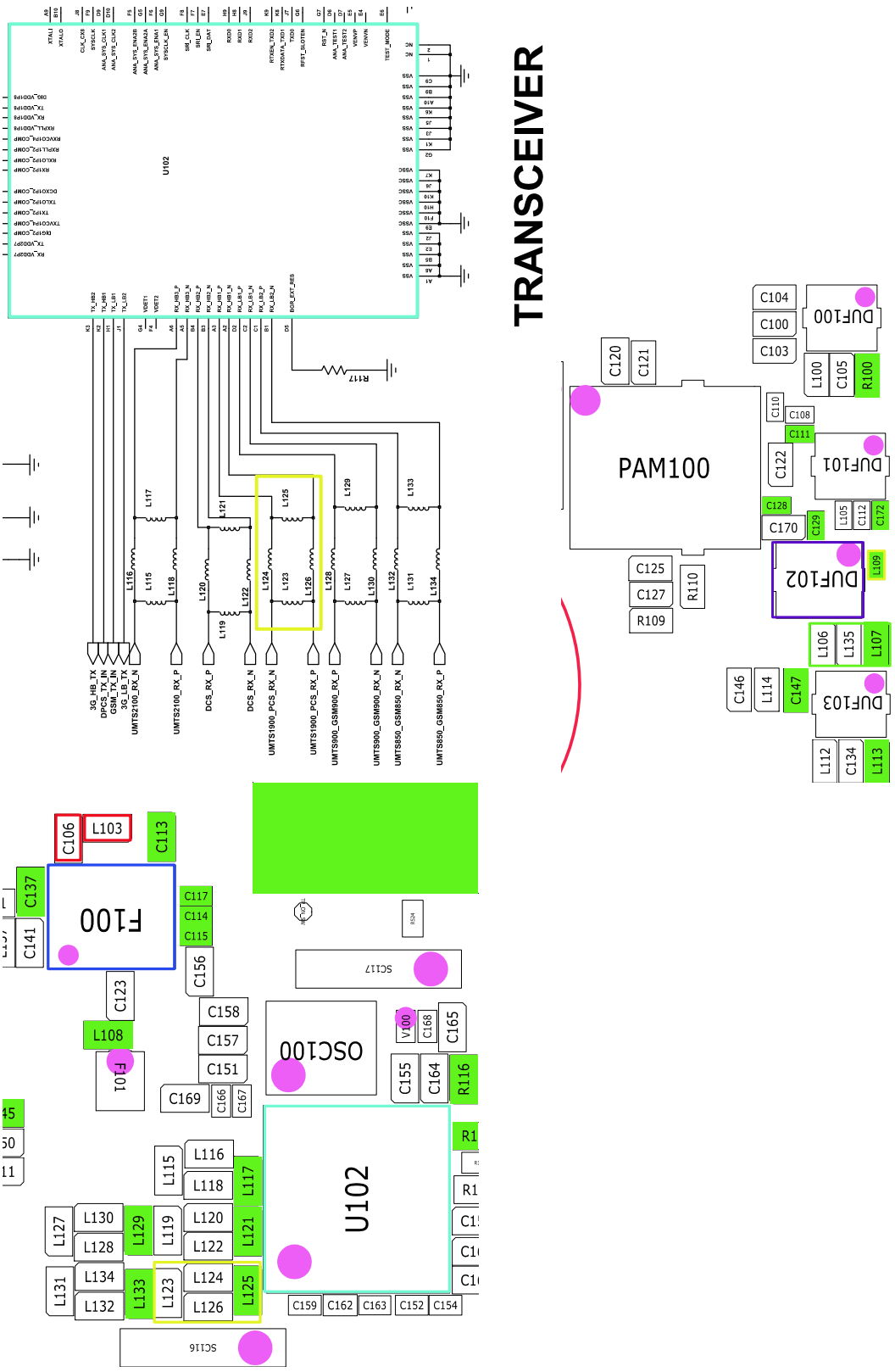

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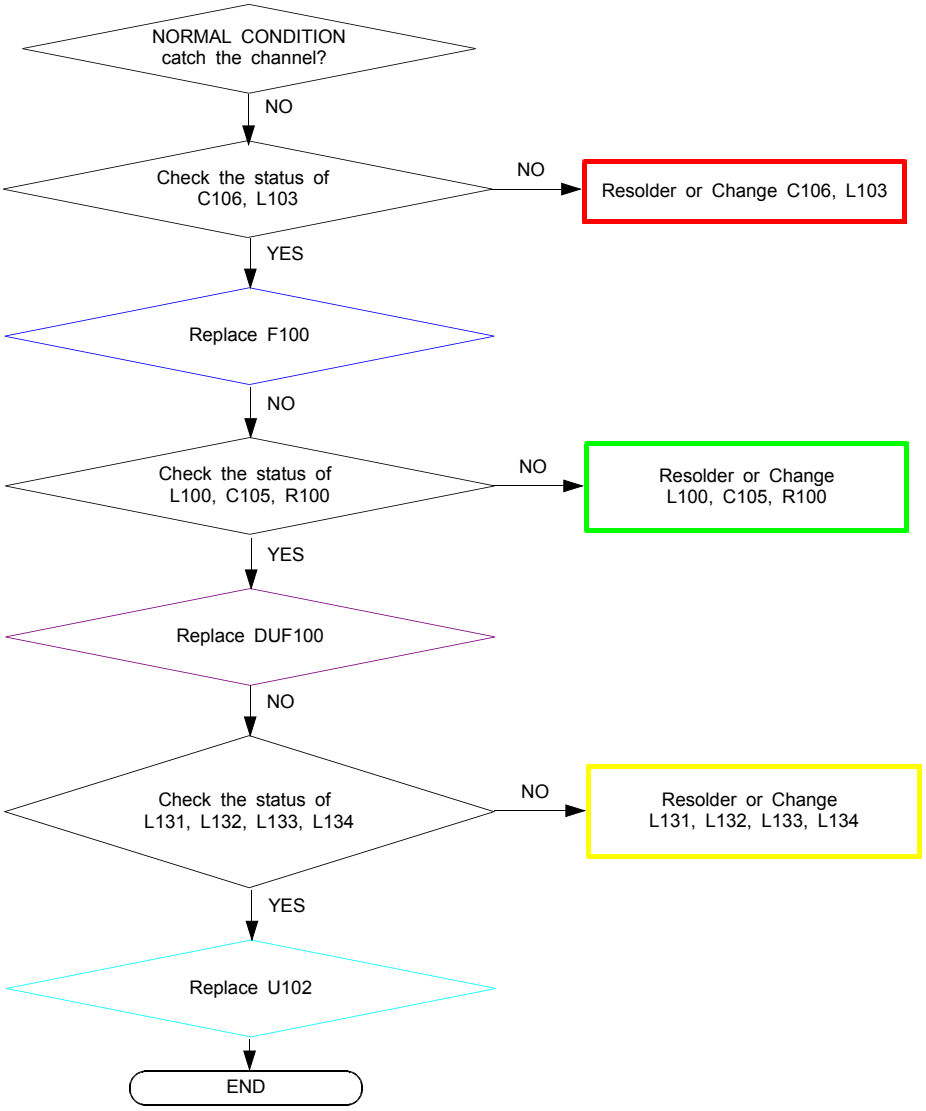
8-3-15. WCDMA Band5 / GSM 850 RX



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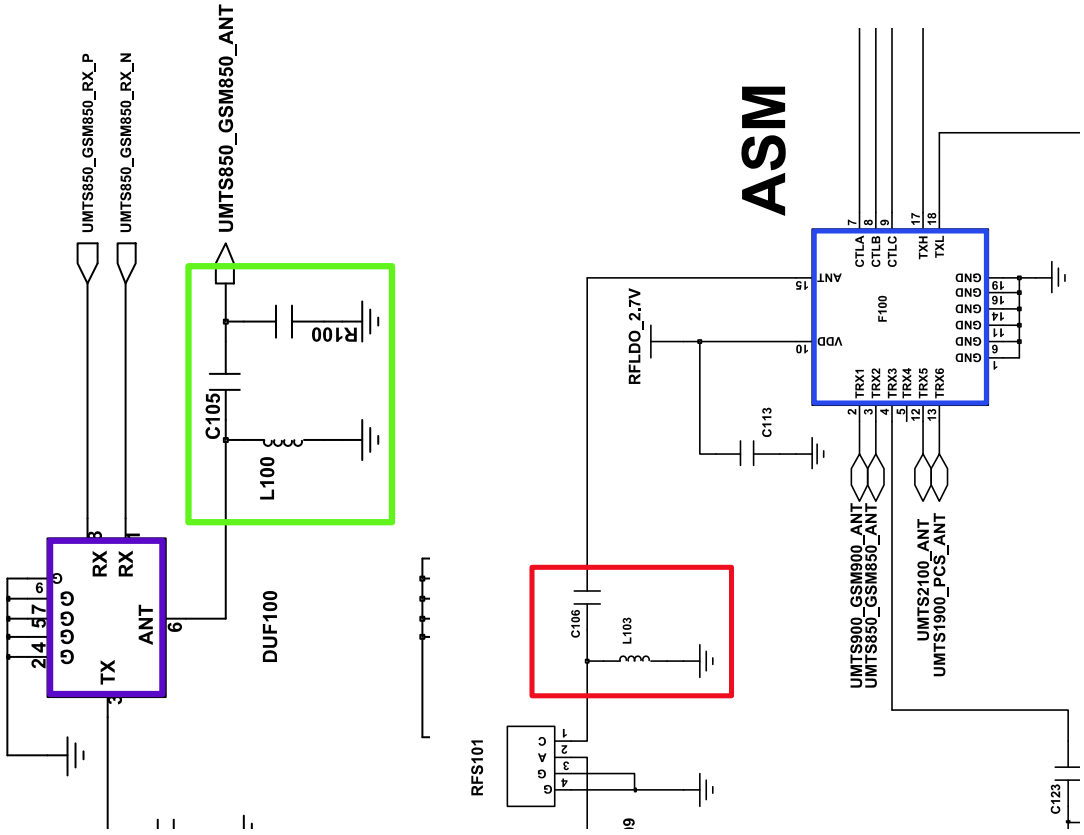

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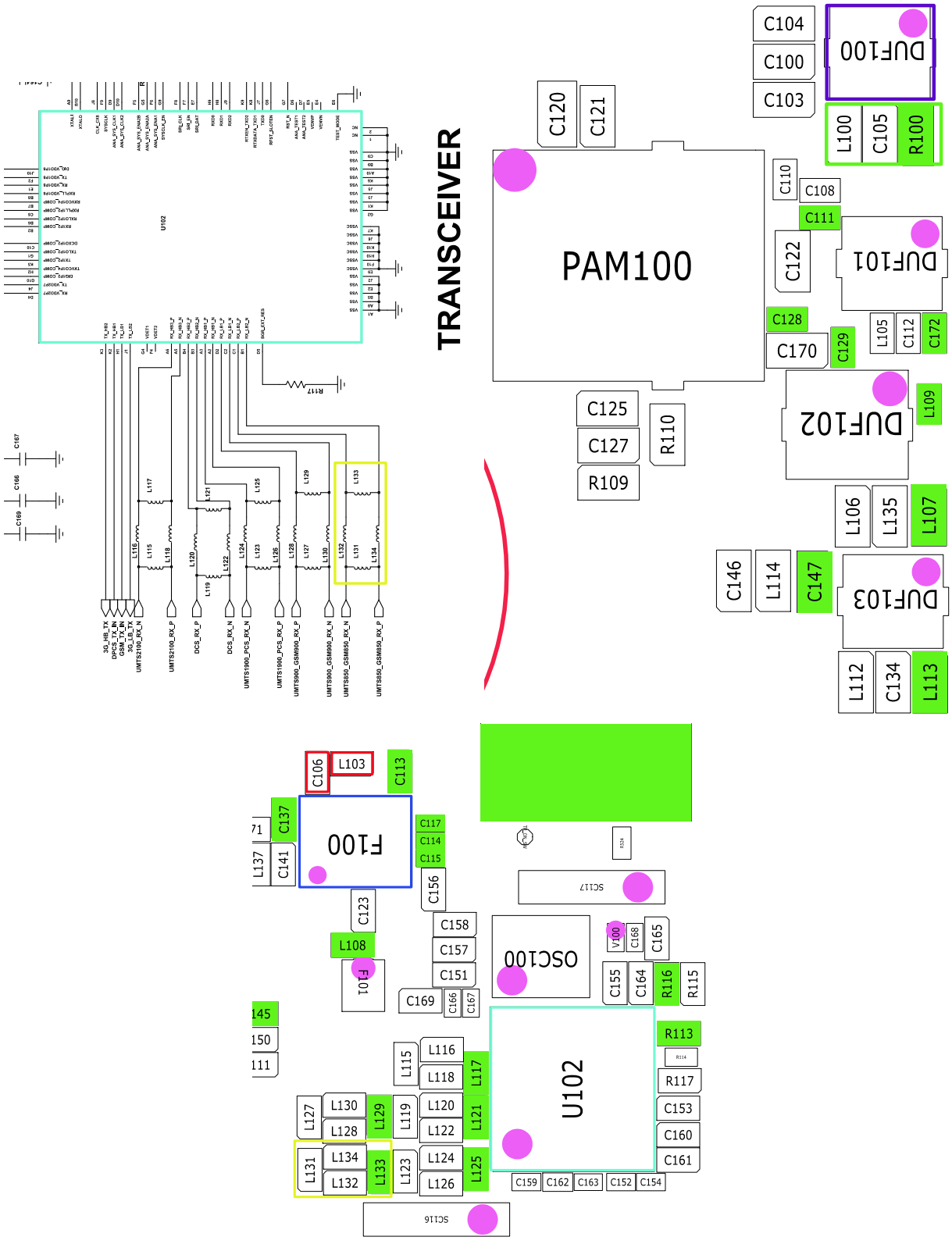

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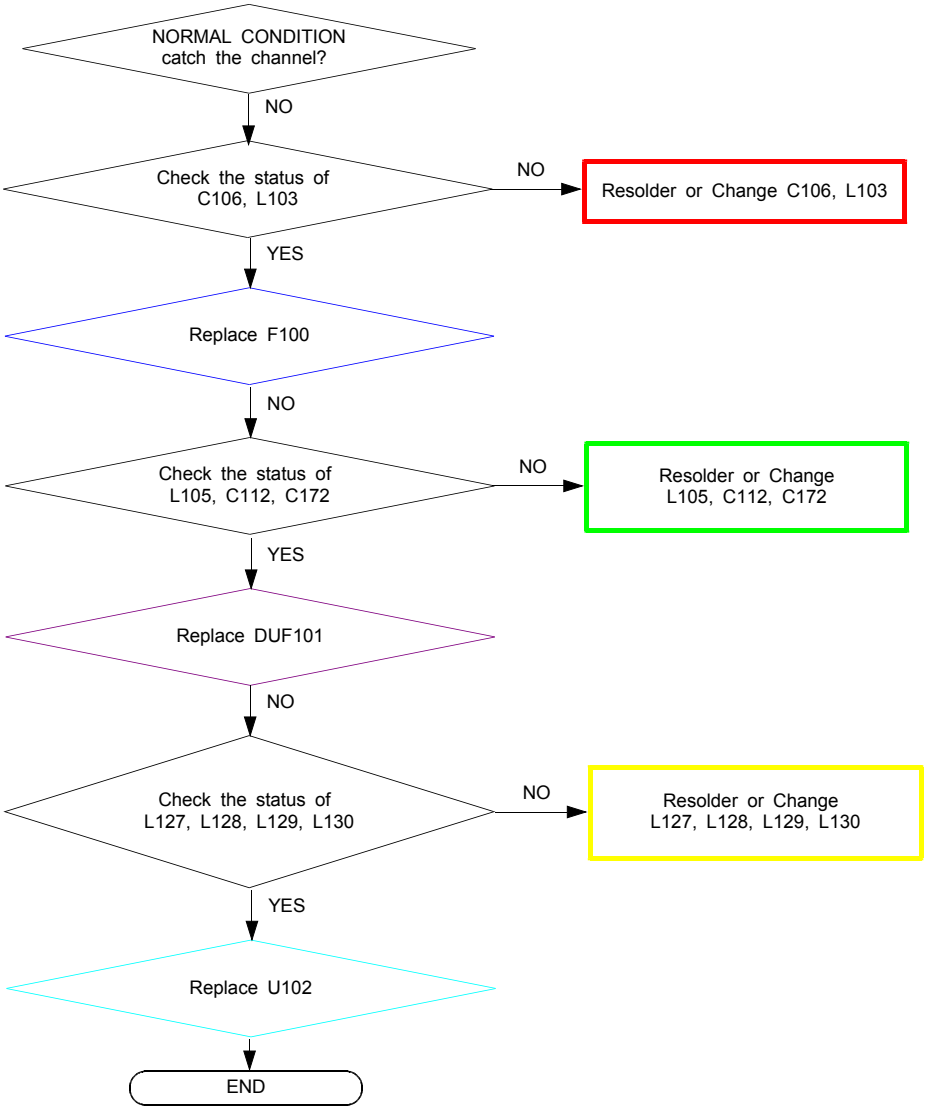
8-3-16. WCDMA Band8 / GSM900 RX



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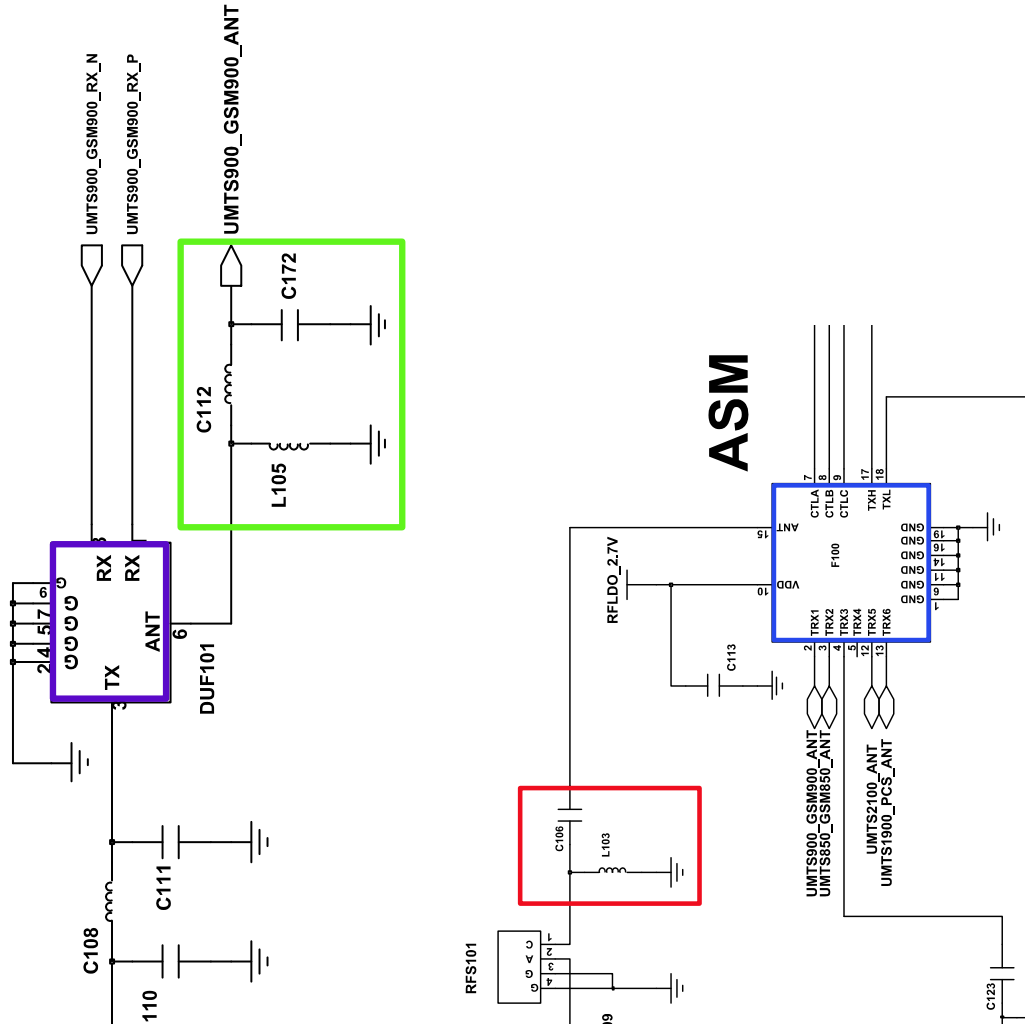

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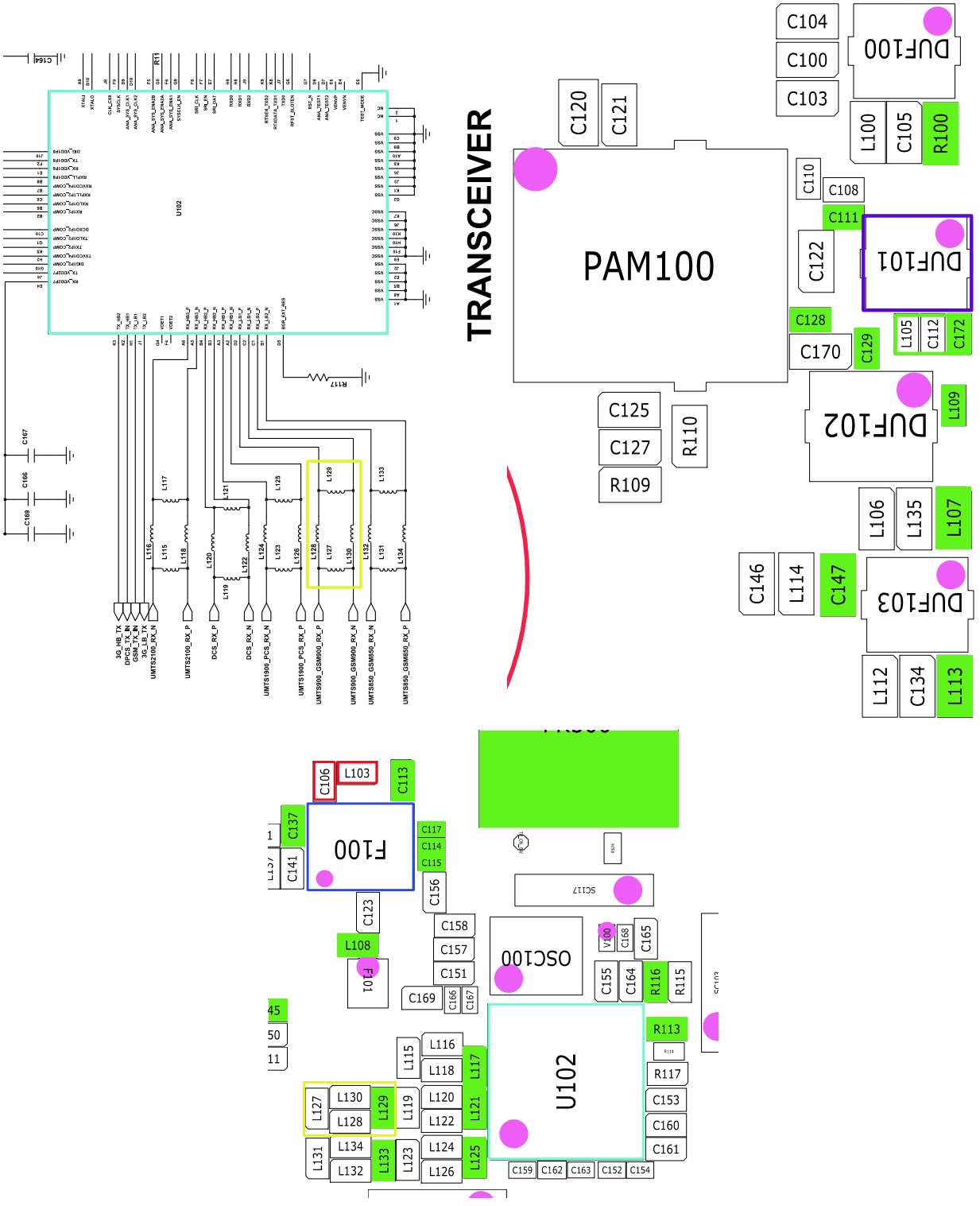

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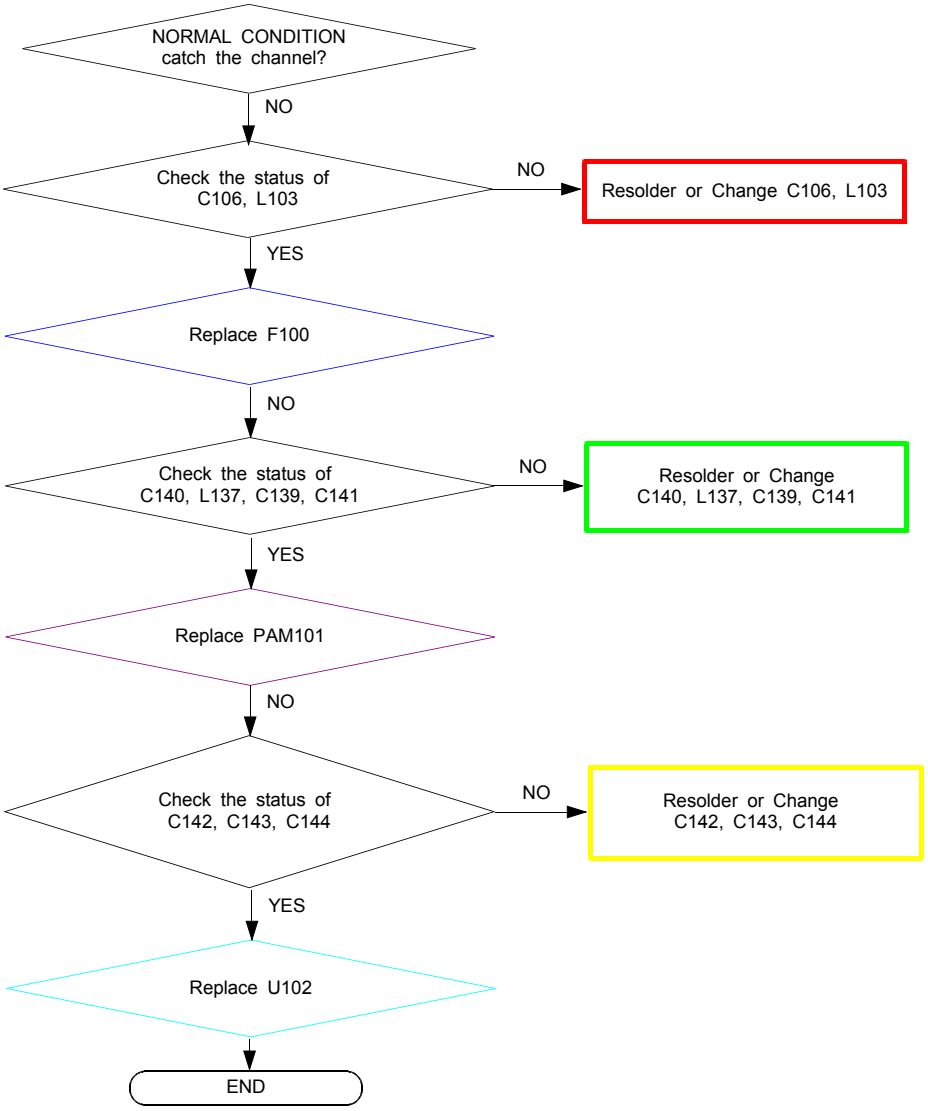
8-3-17. GSM850/GSM900 TX



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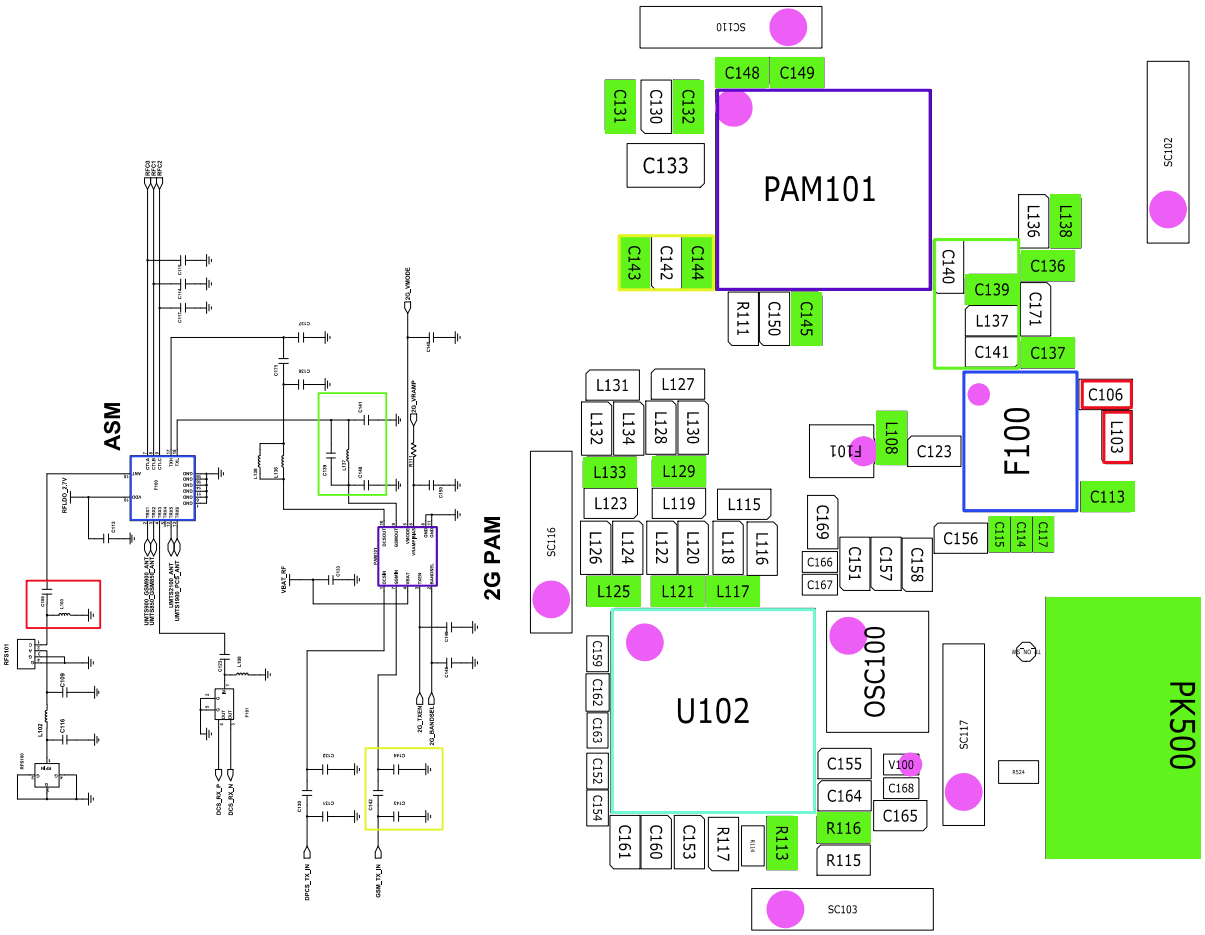

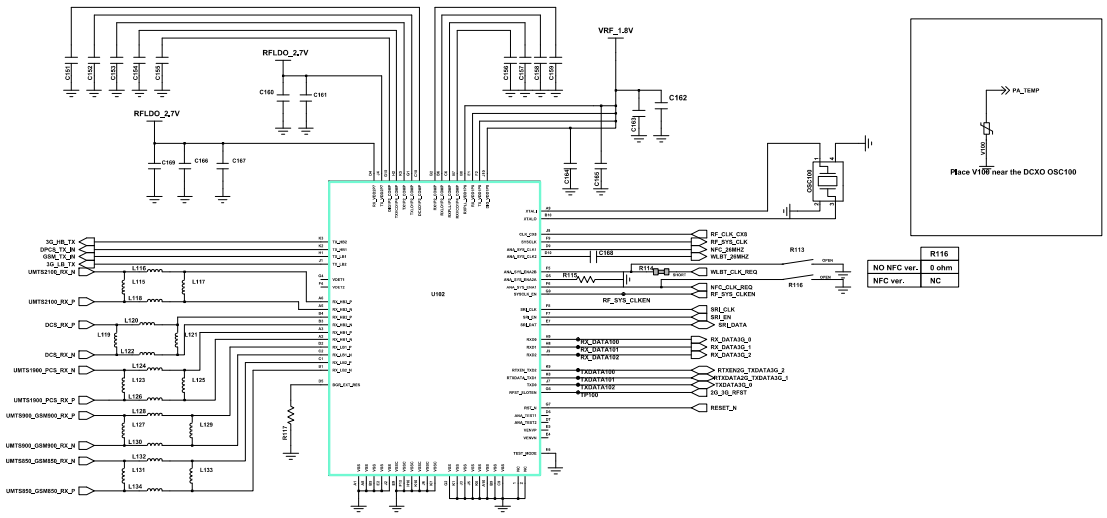

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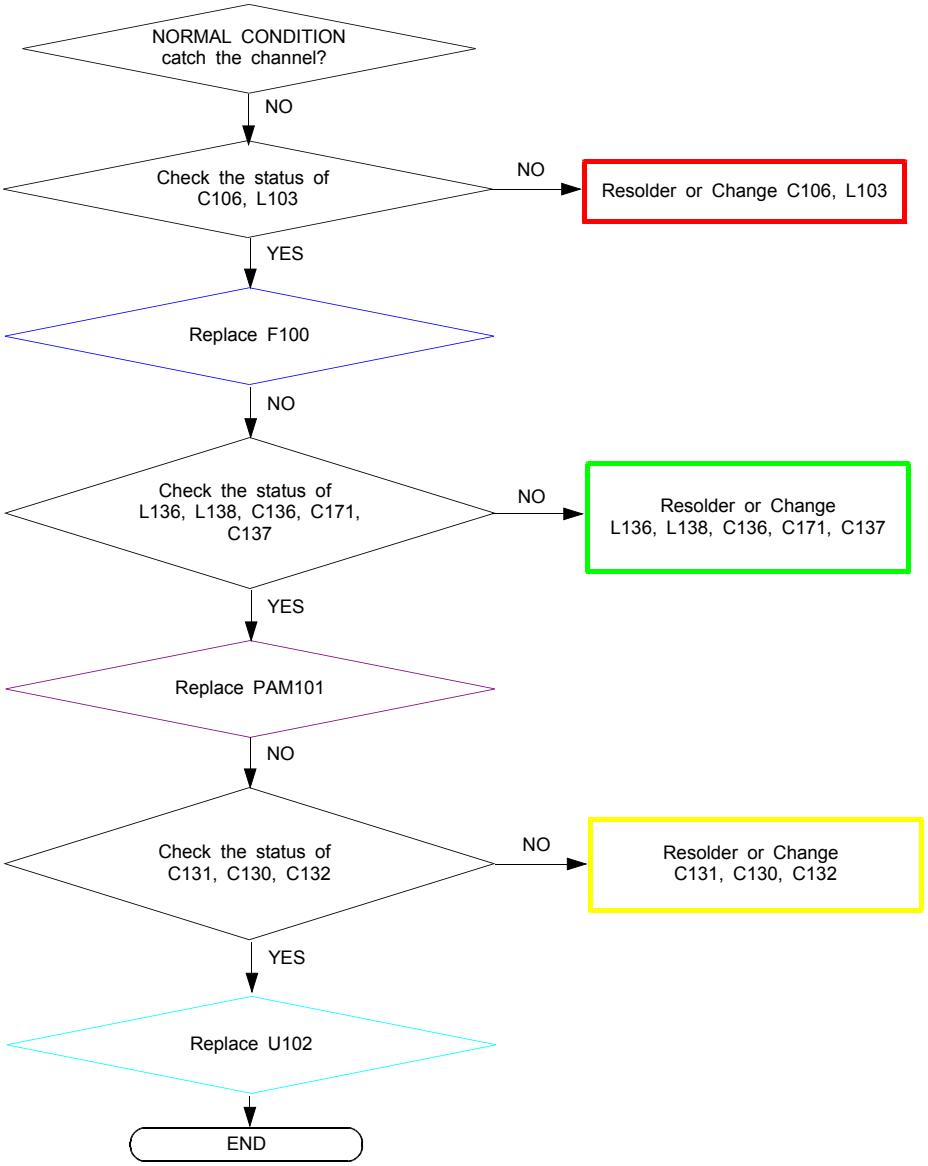
8-3-18. DCS/PCS TX



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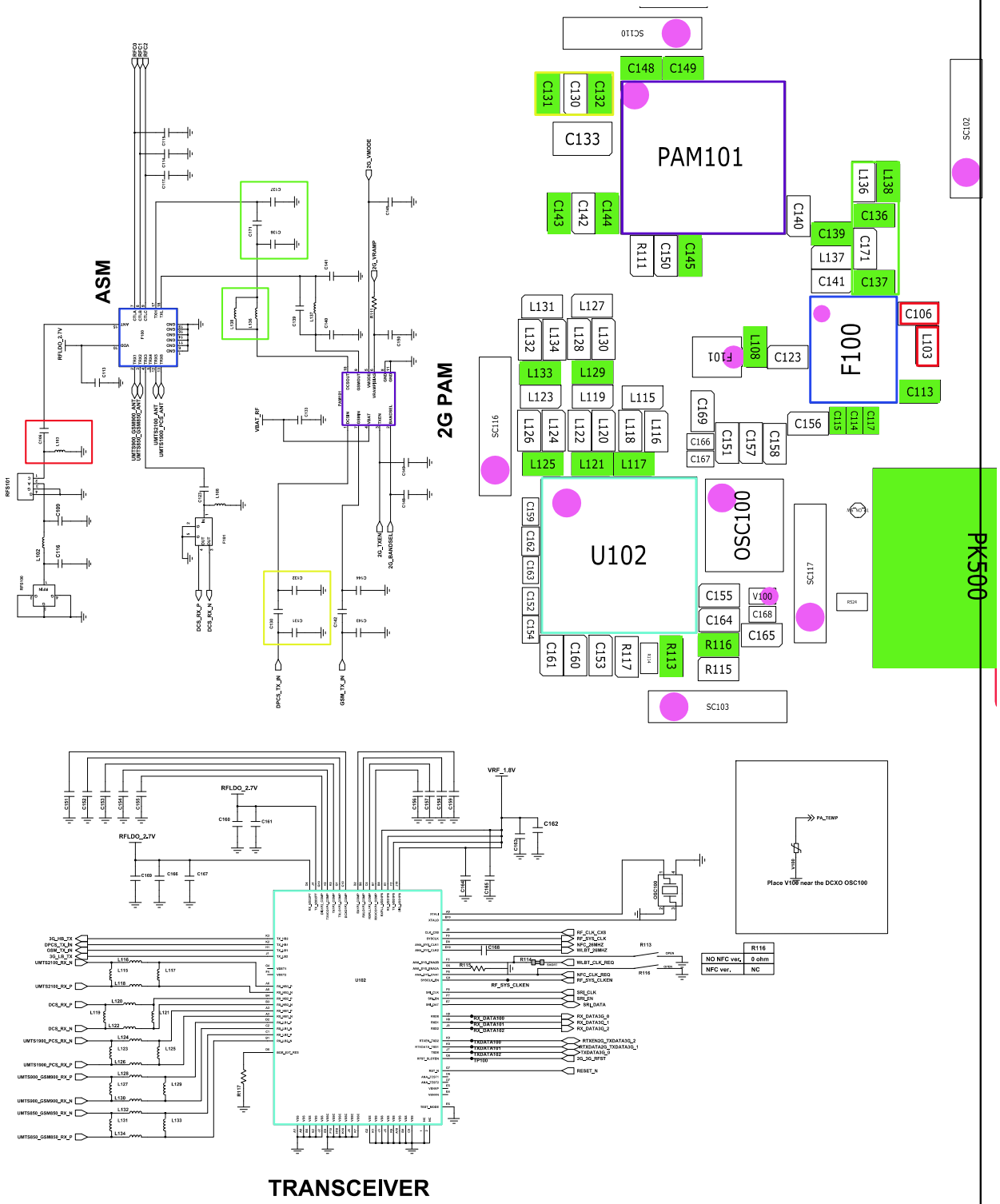

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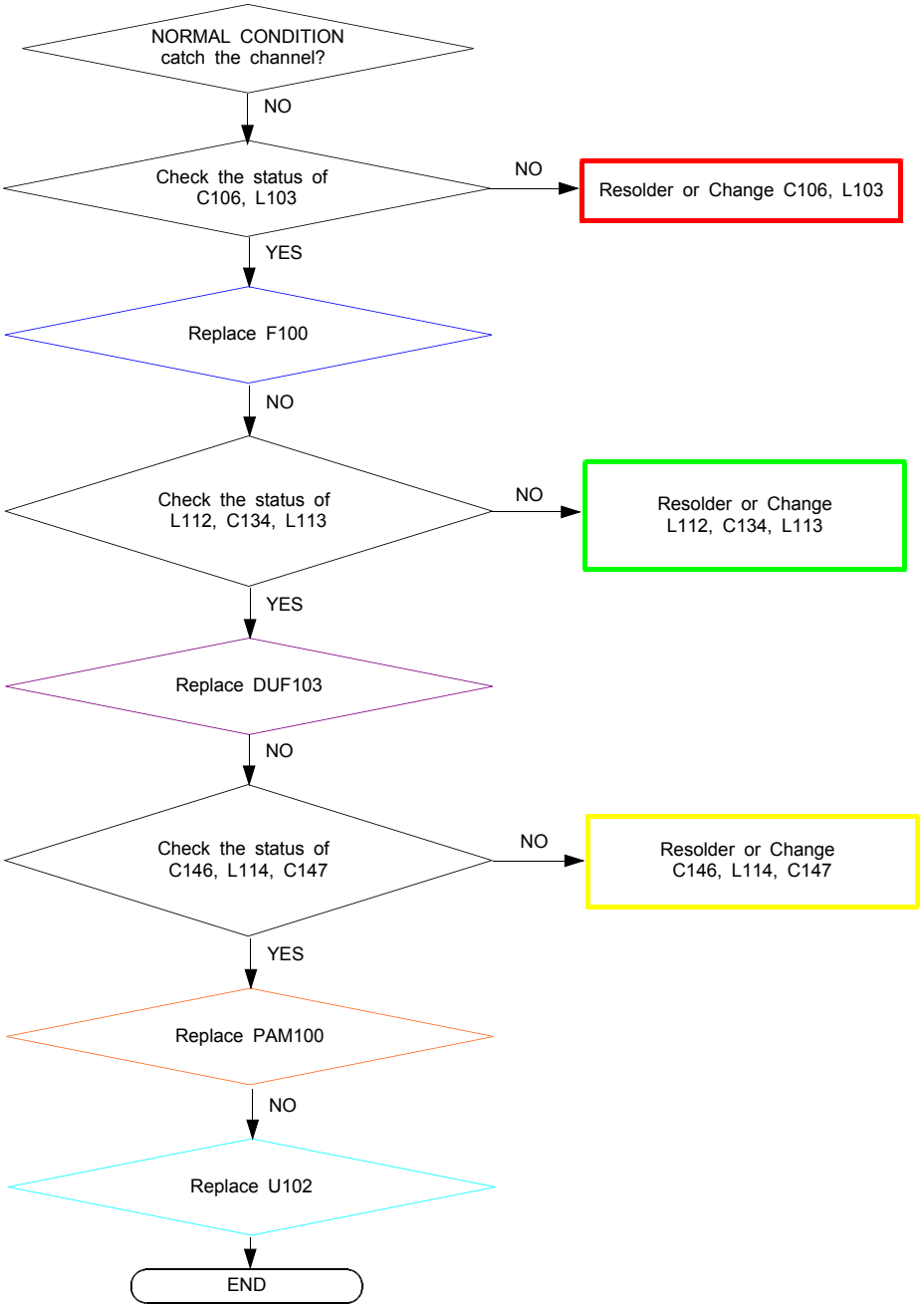
8-3-19. WCDMA BAND1 TX



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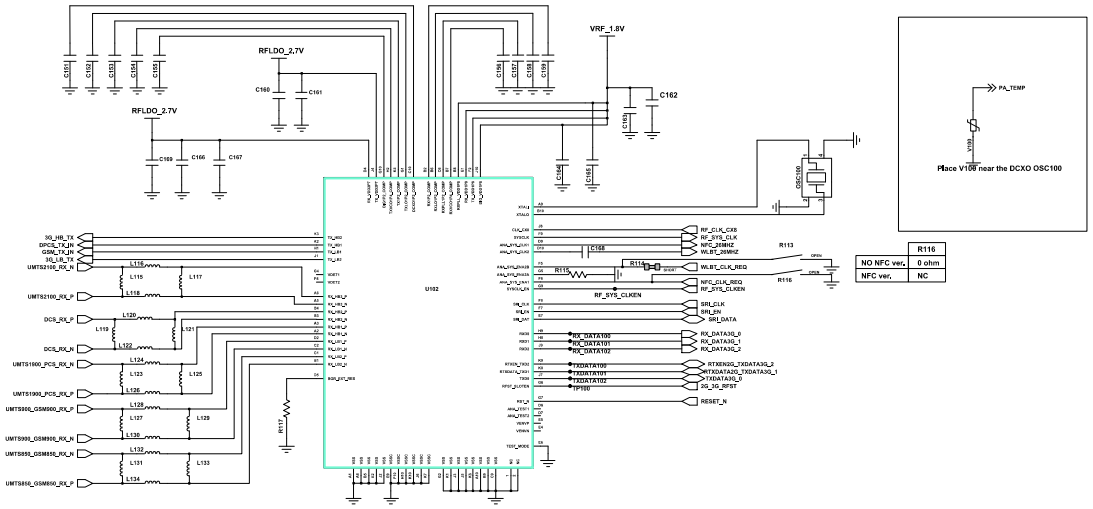

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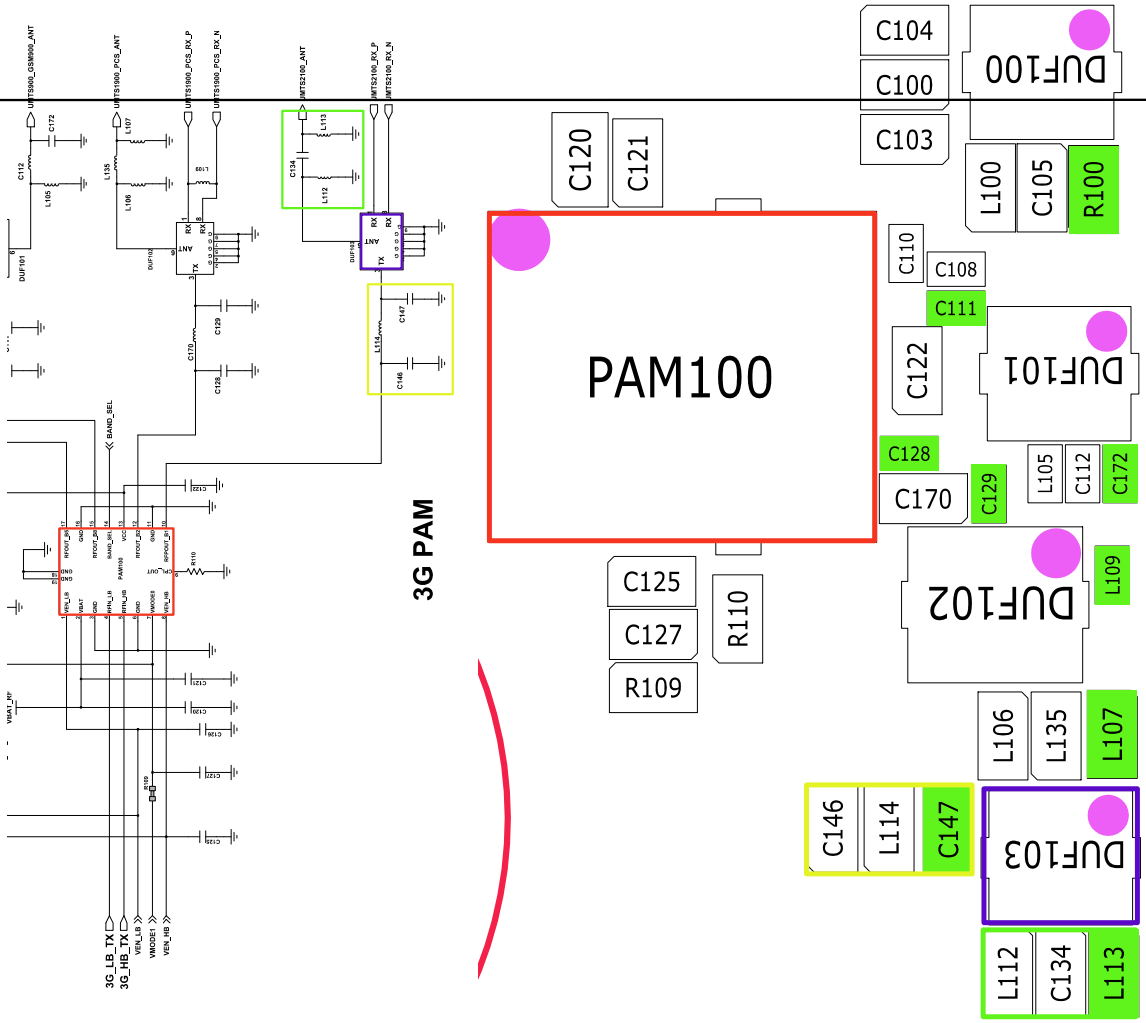

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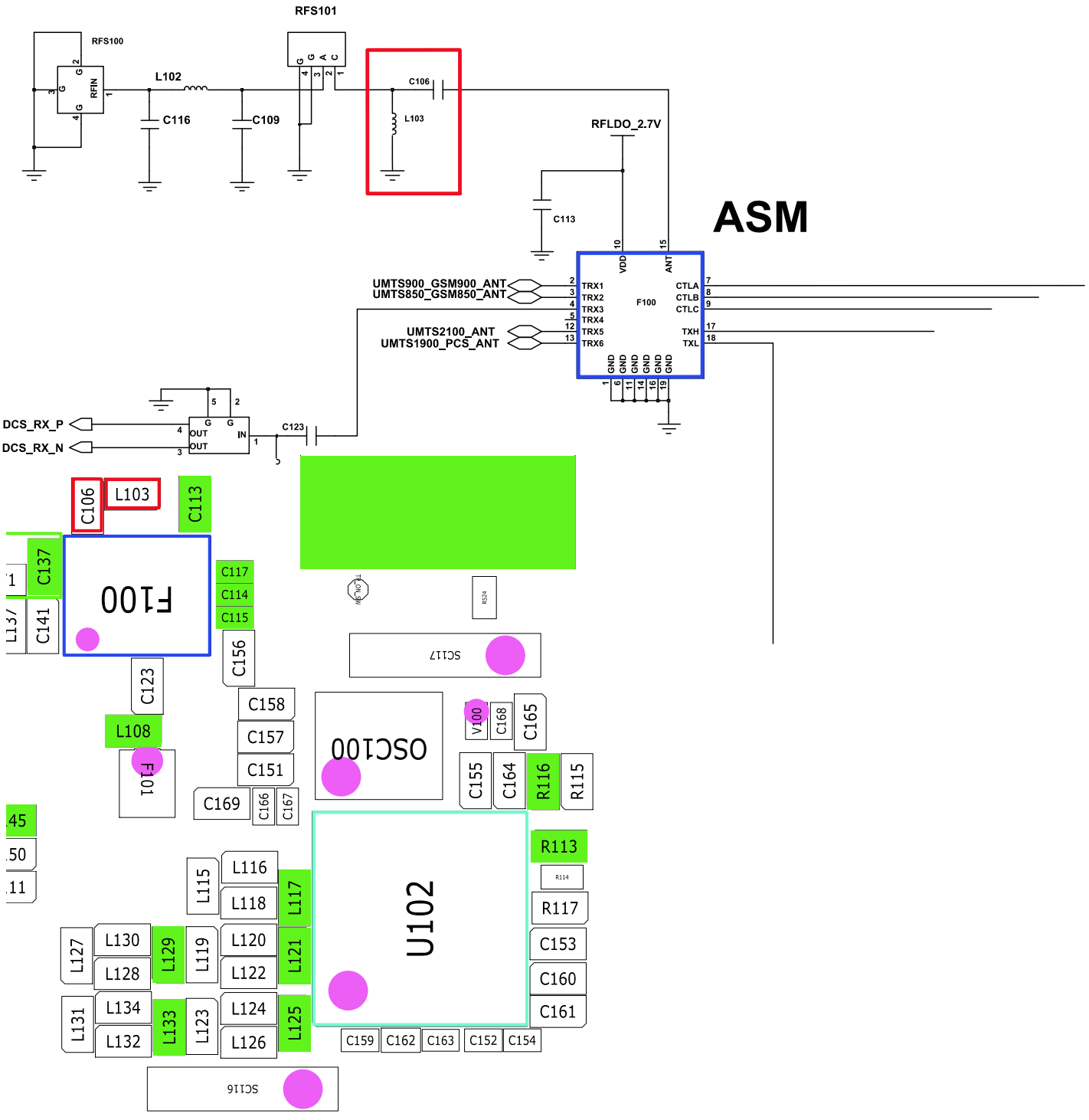

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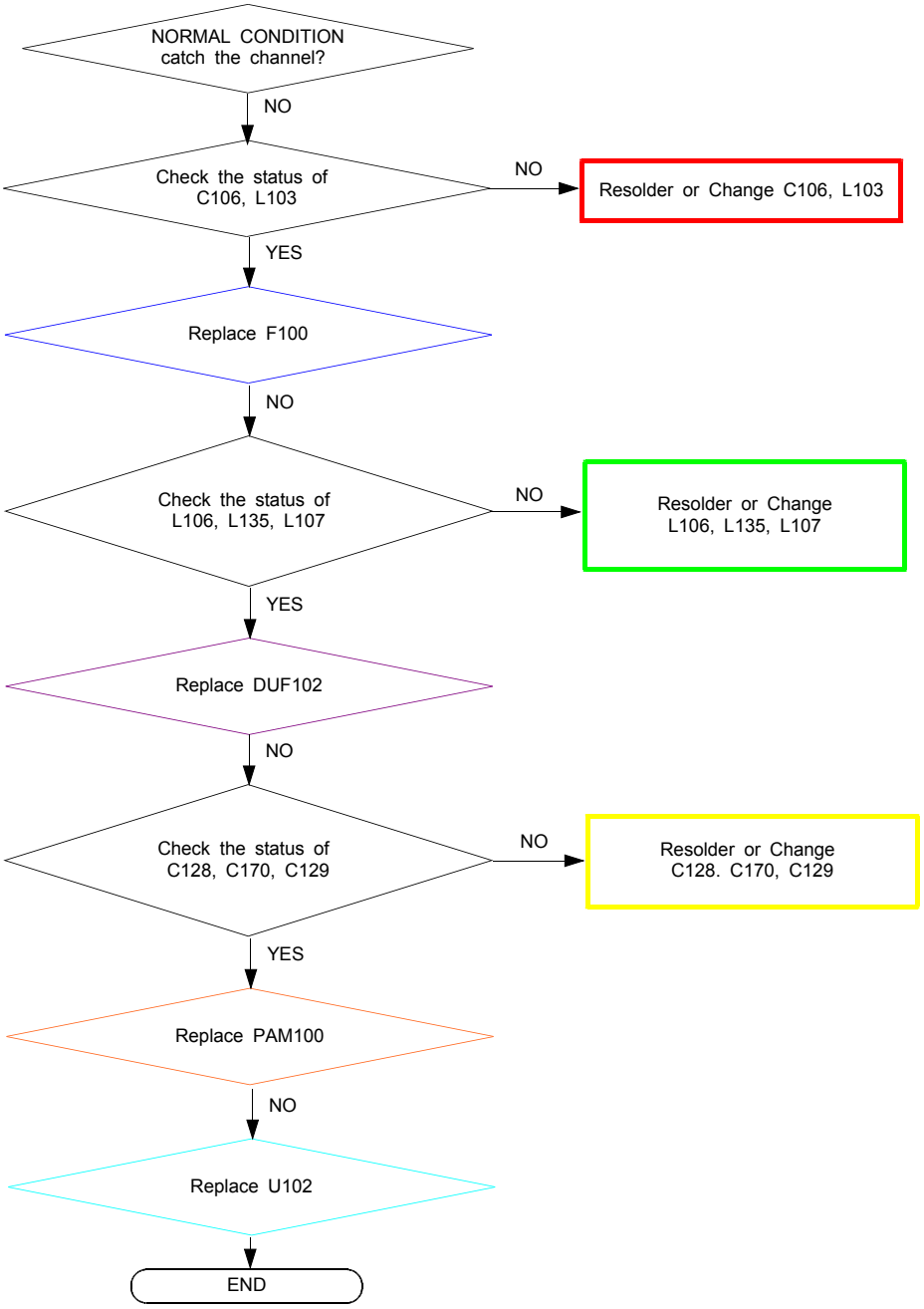
8-3-20. WCDMA BAND2 TX



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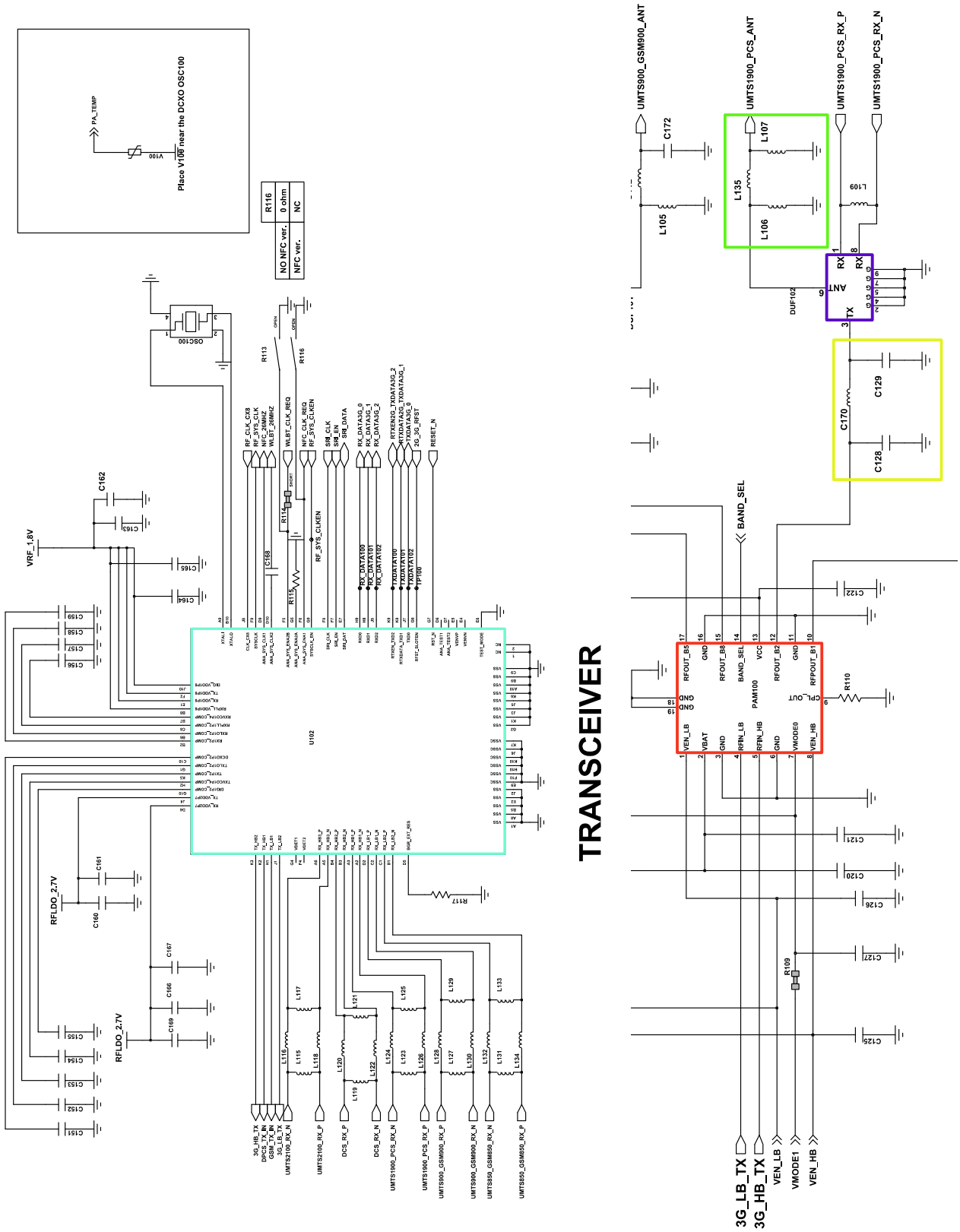

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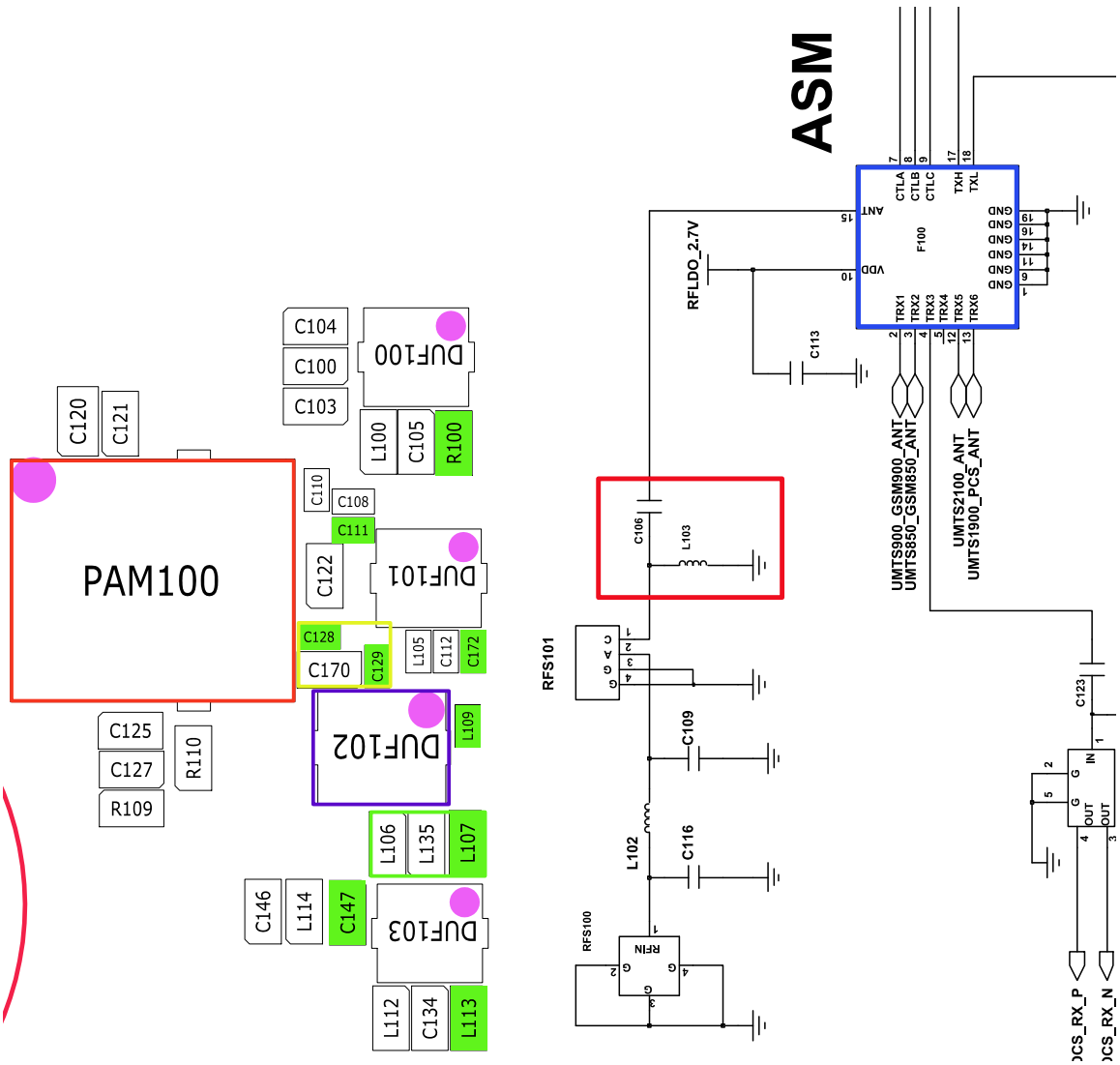

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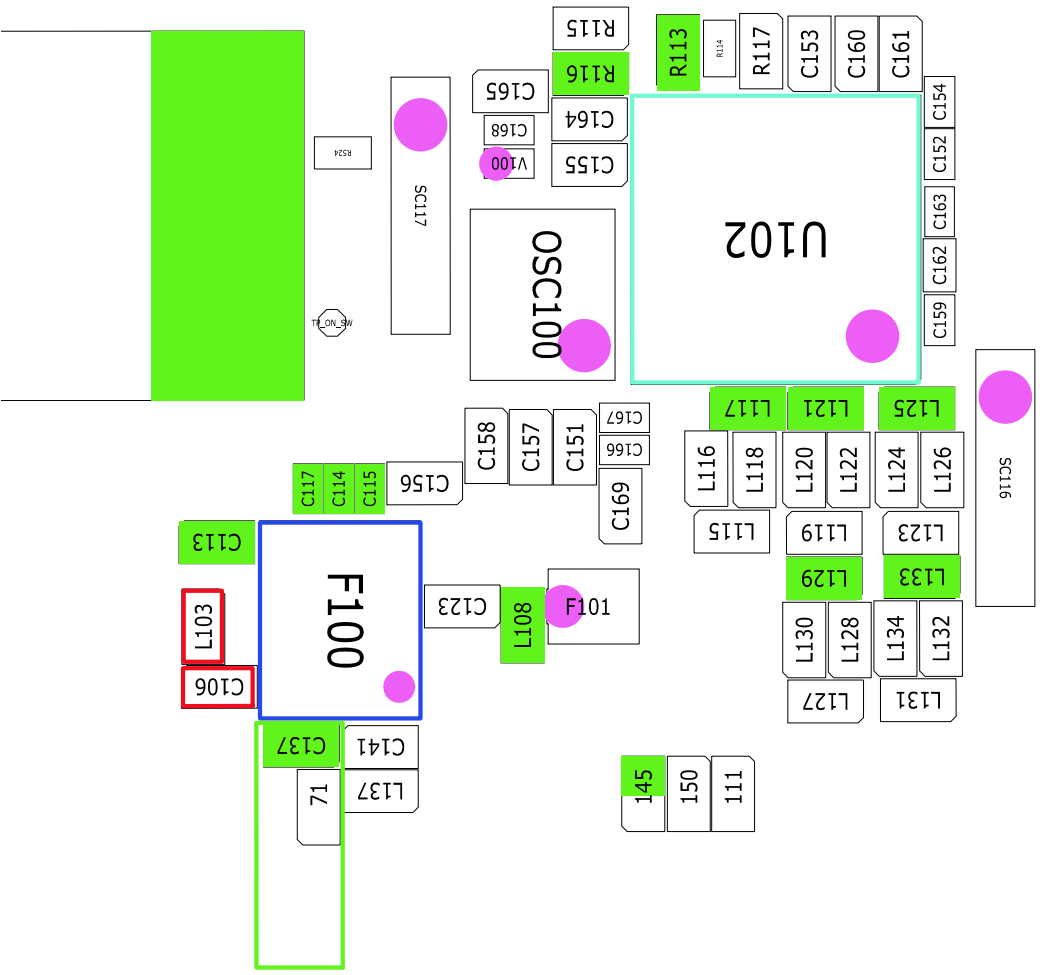

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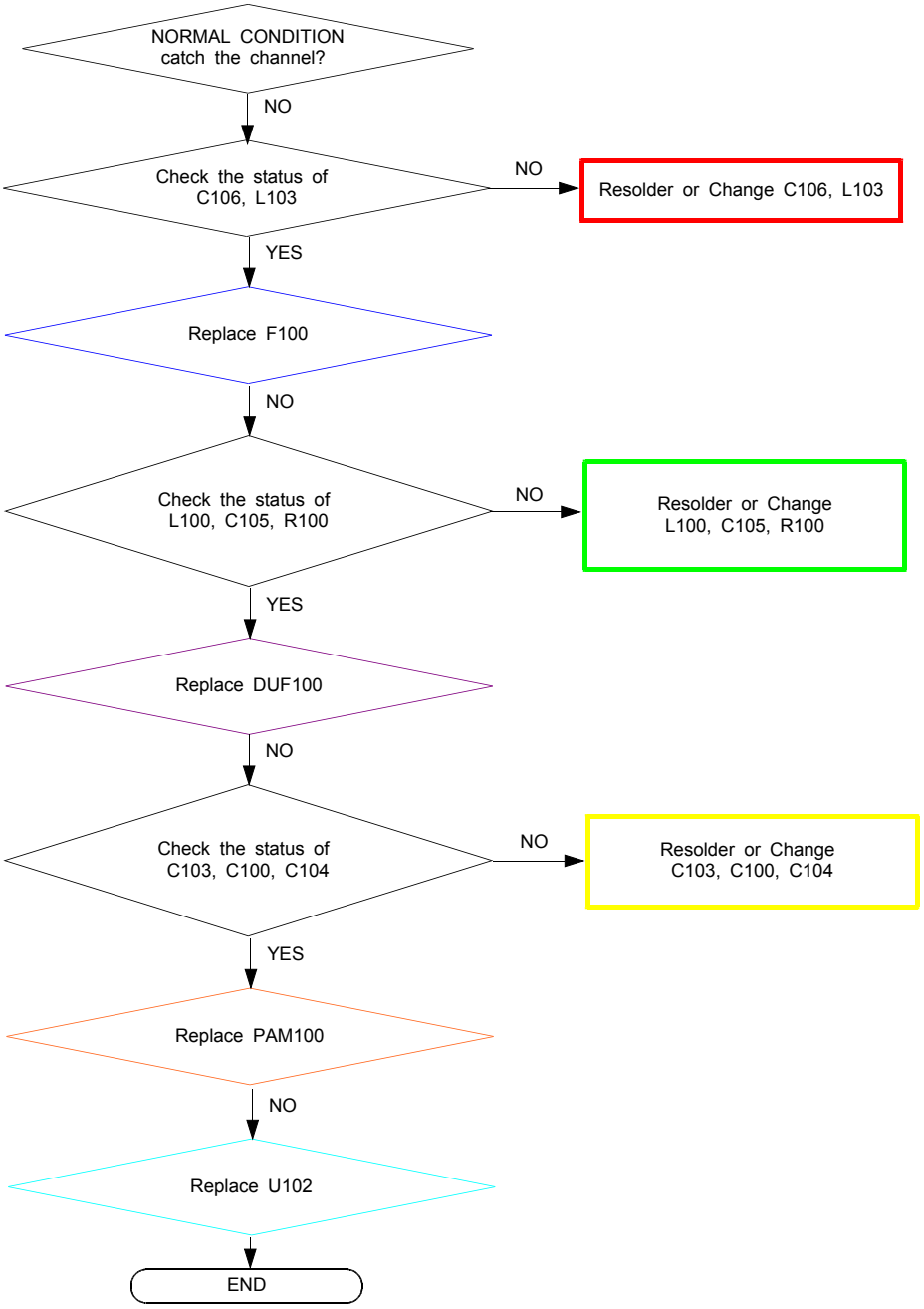
8-3-21. WCDMA BAND5 TX



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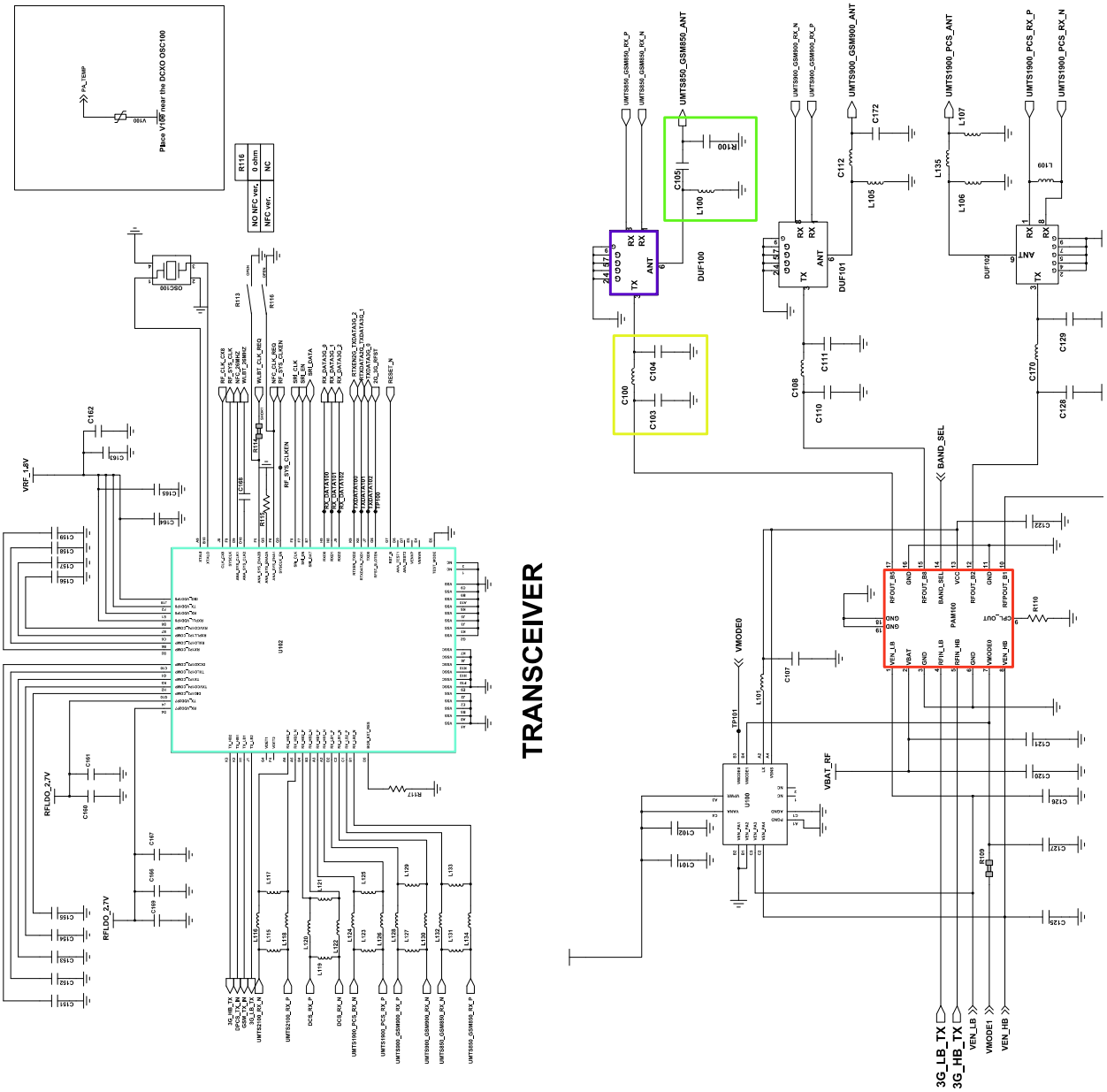

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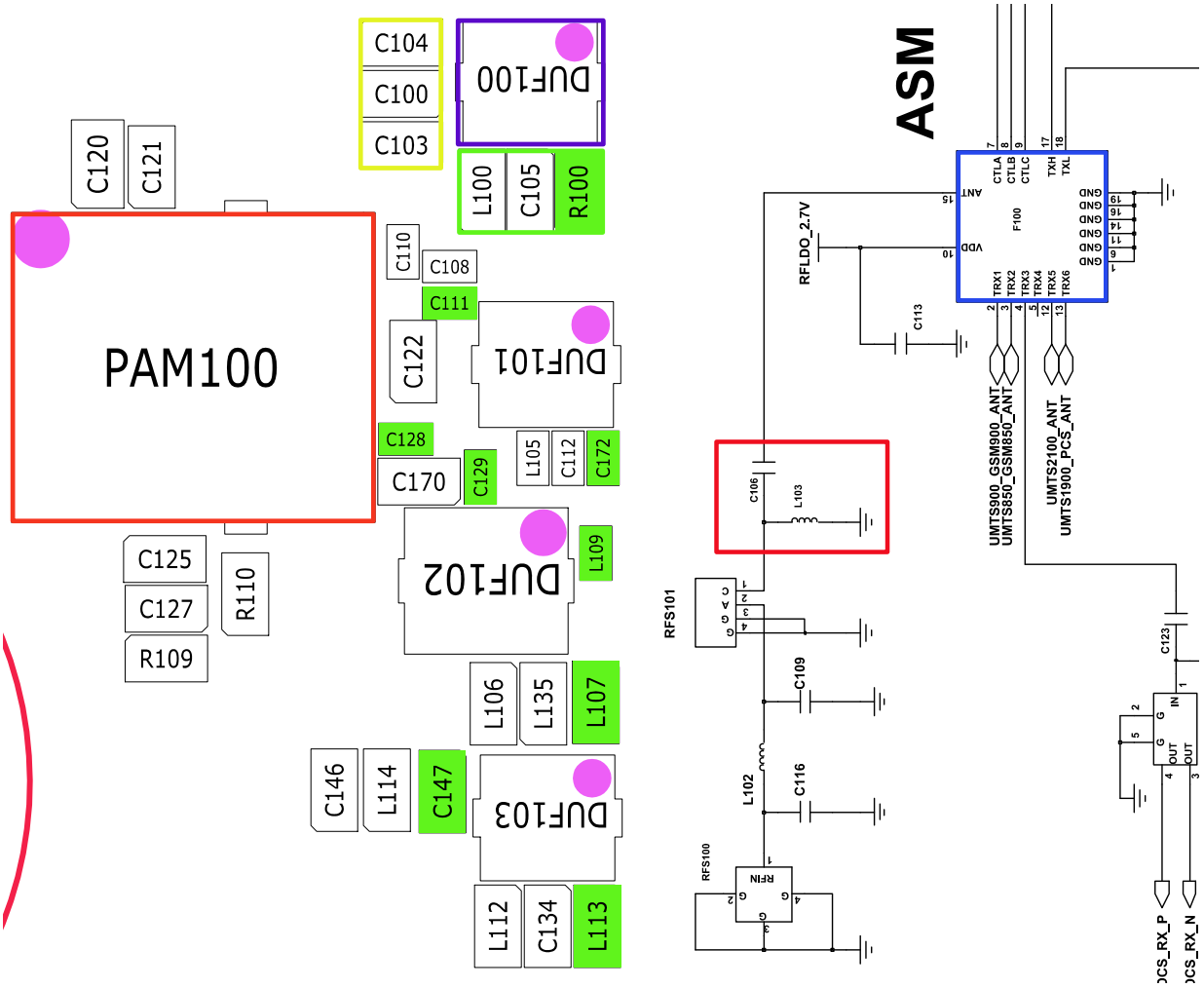

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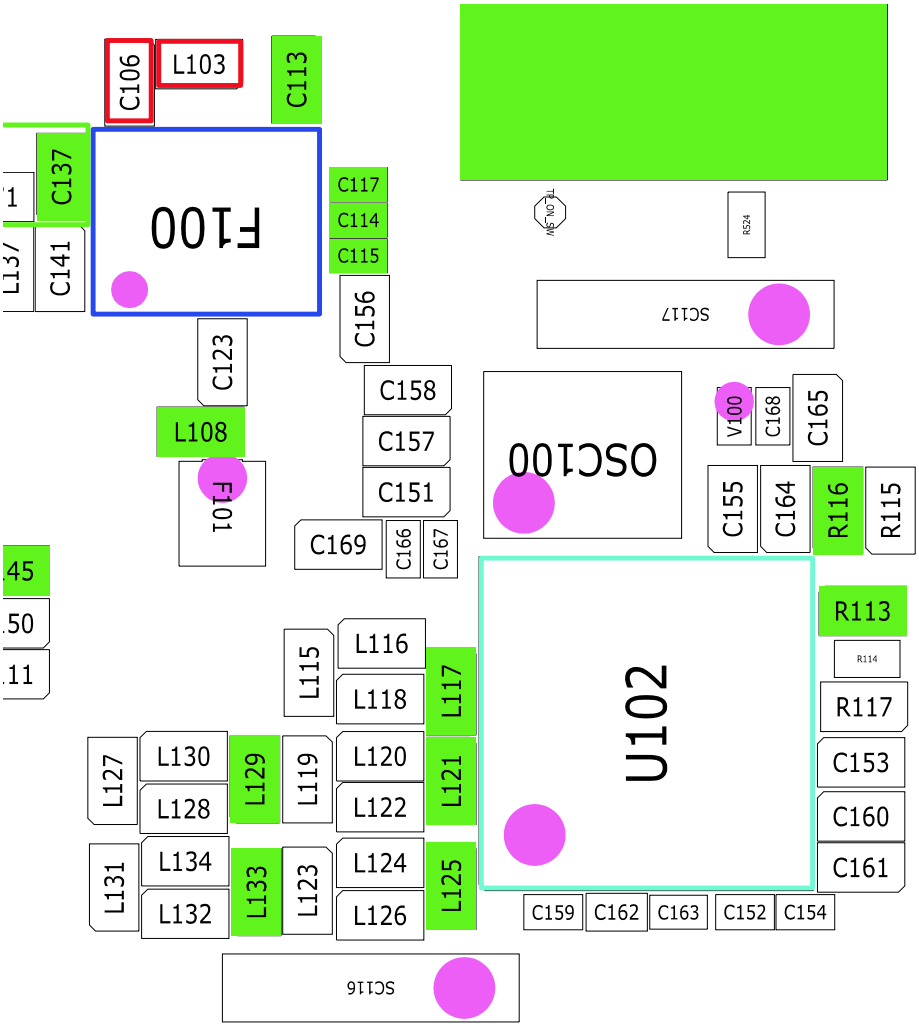

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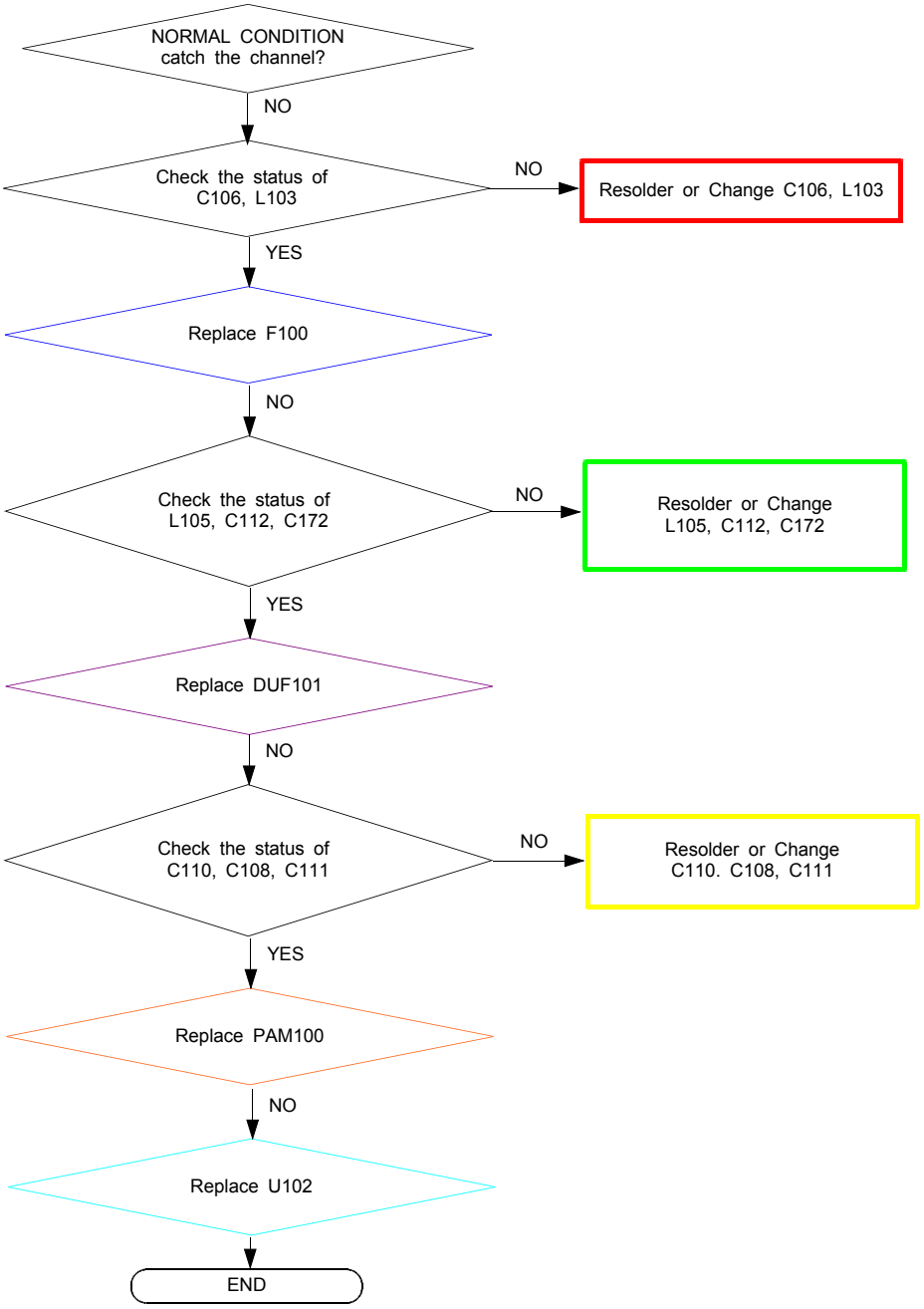
8-3-22. WCDMA BAND8 TX



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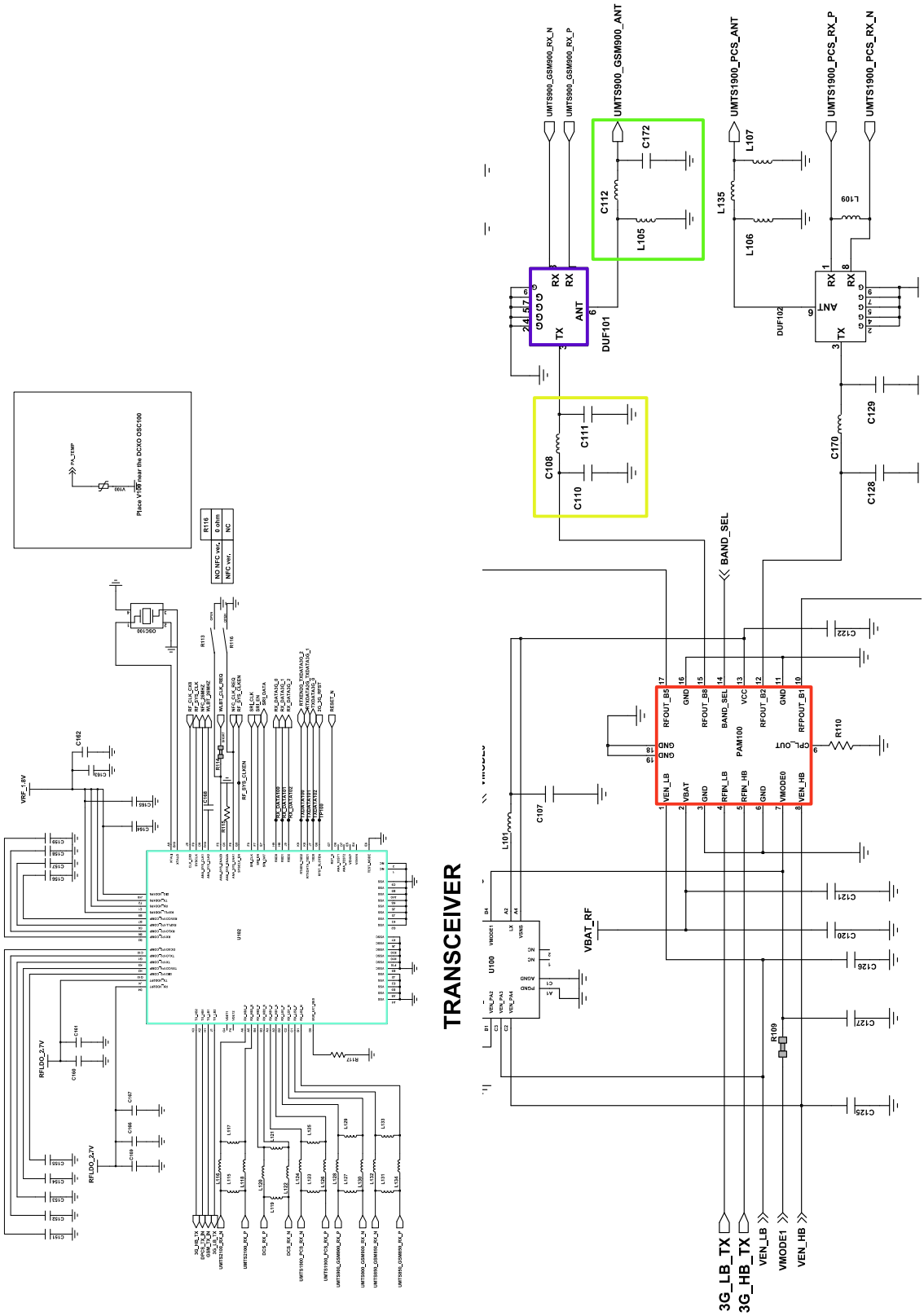

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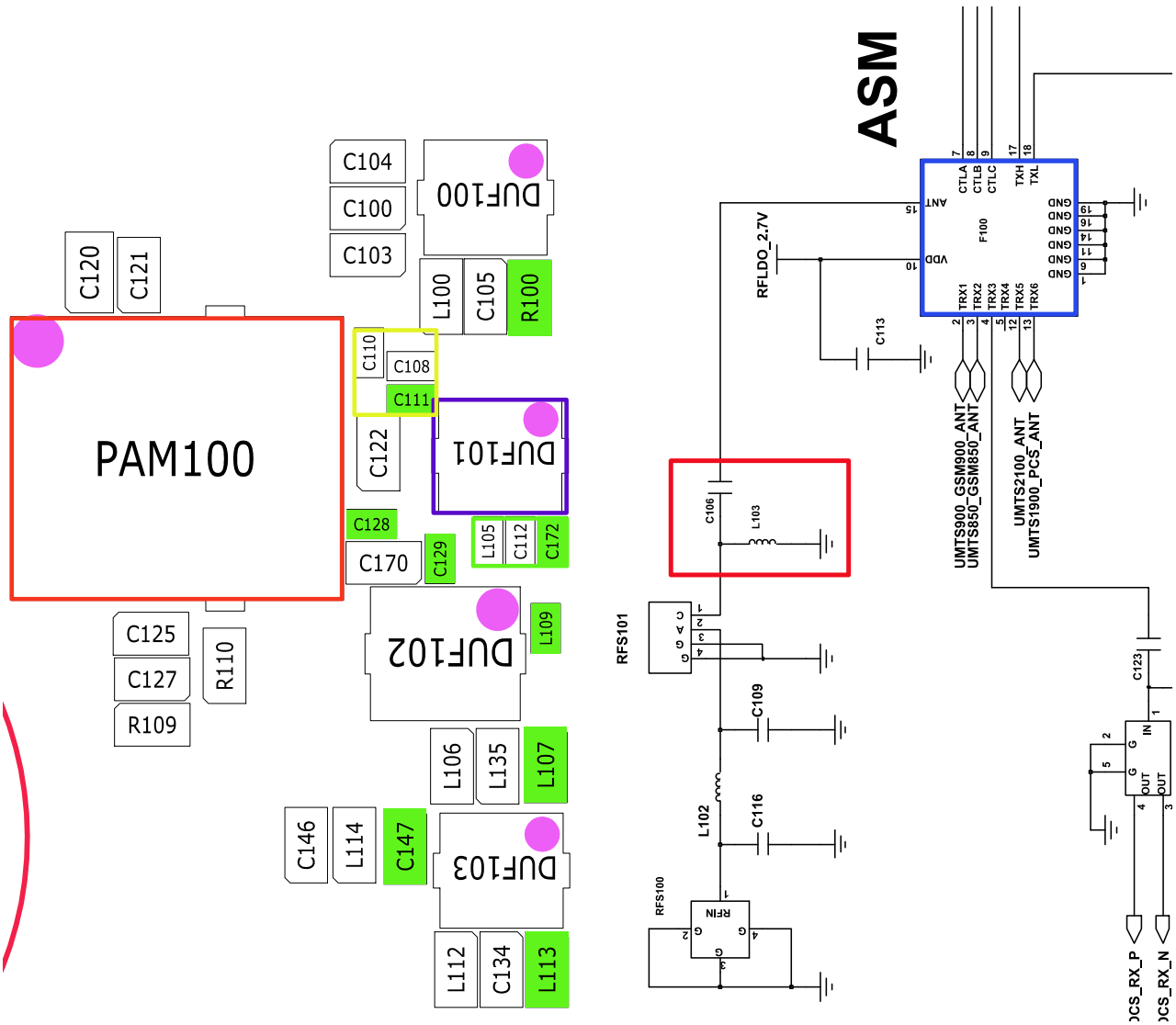

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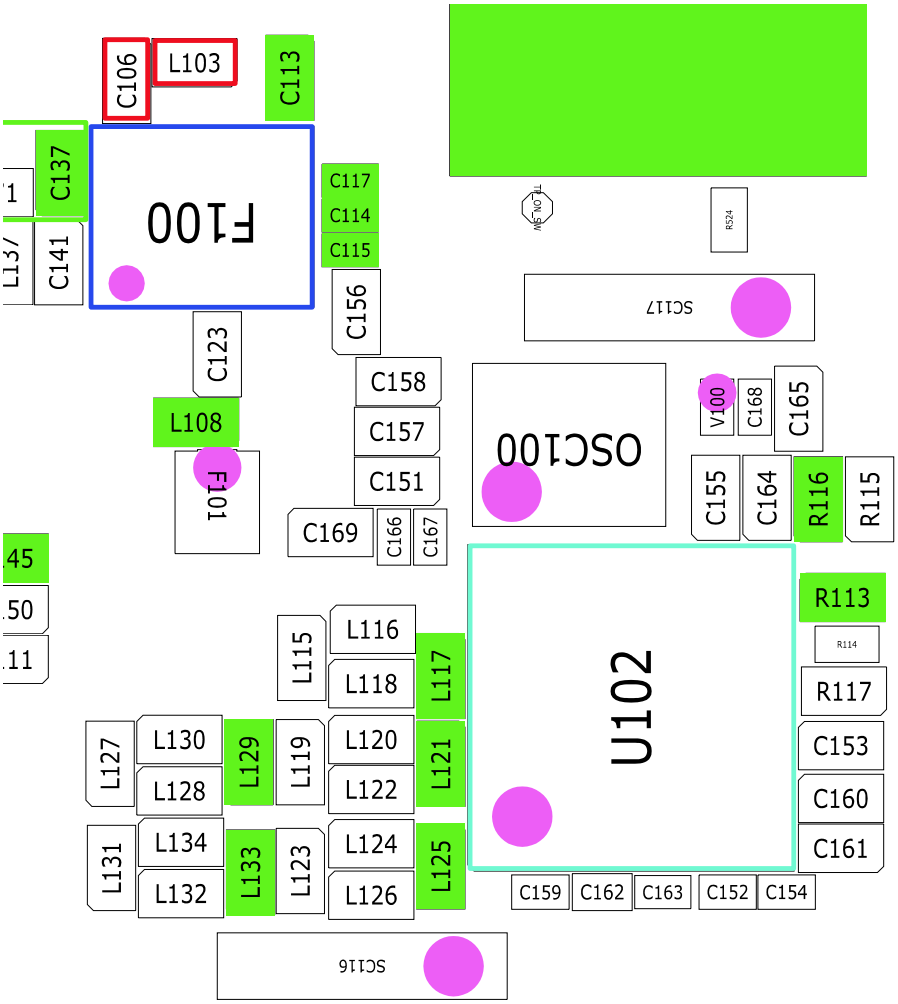

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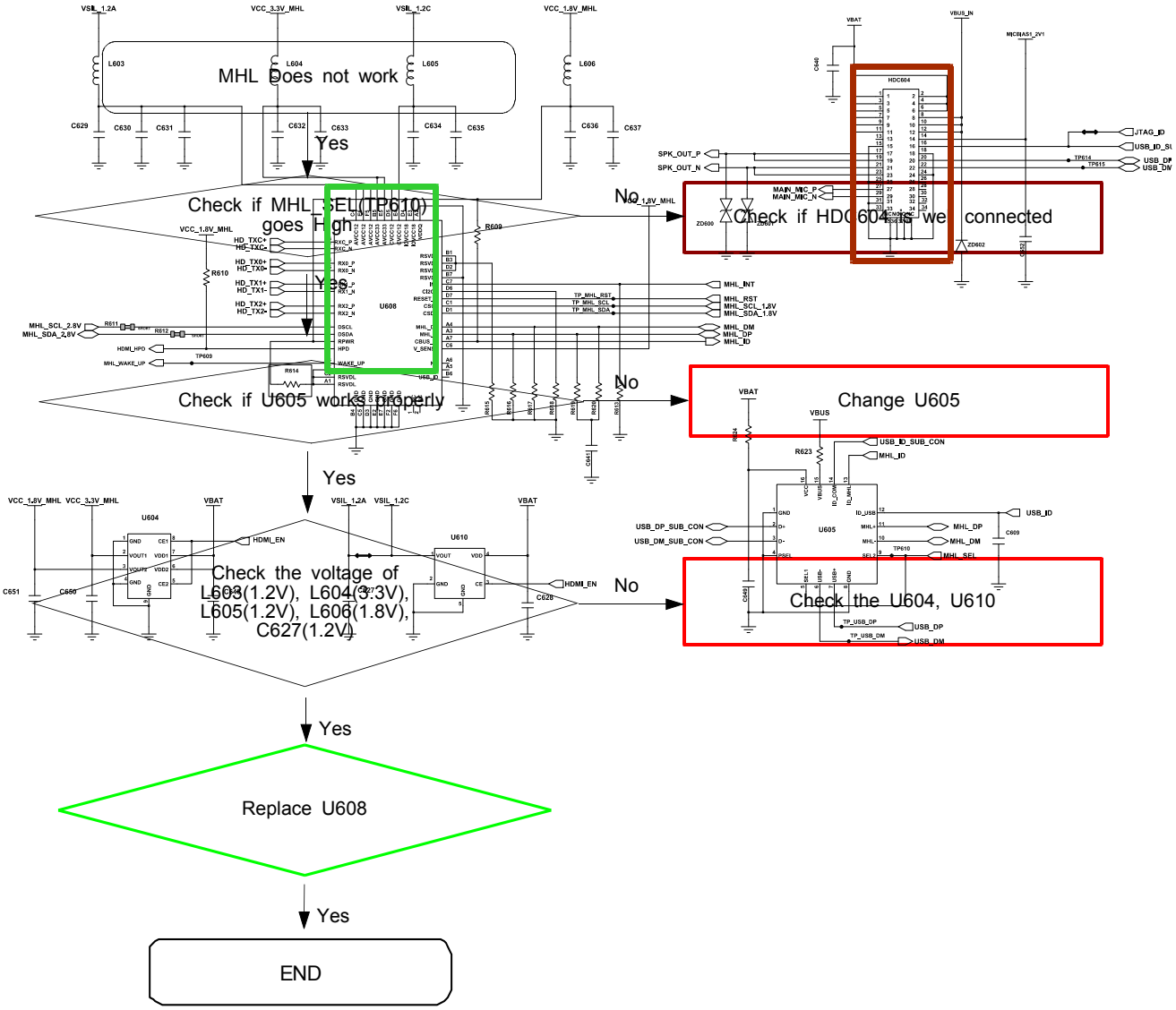
8-3-8. MHL



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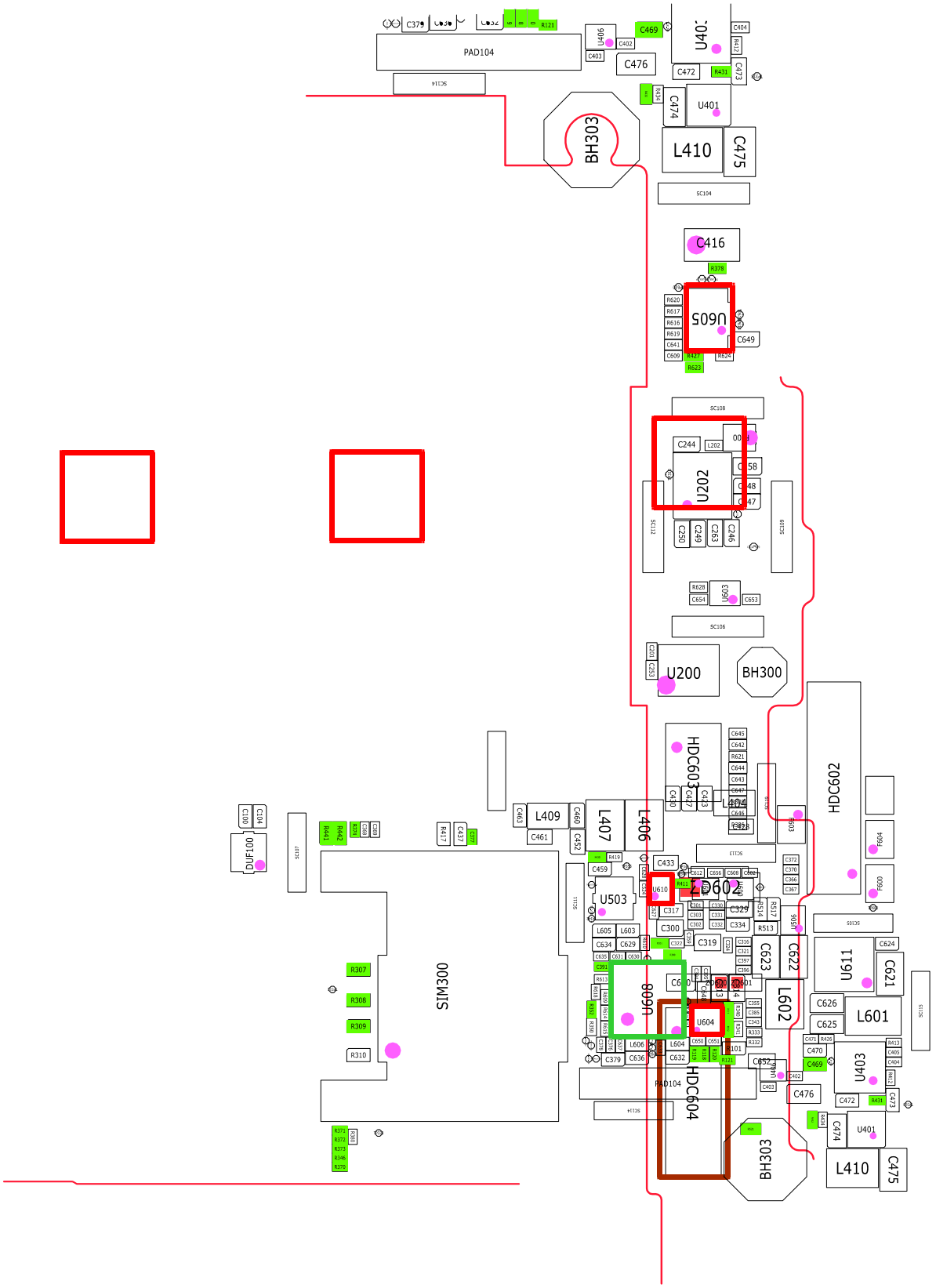

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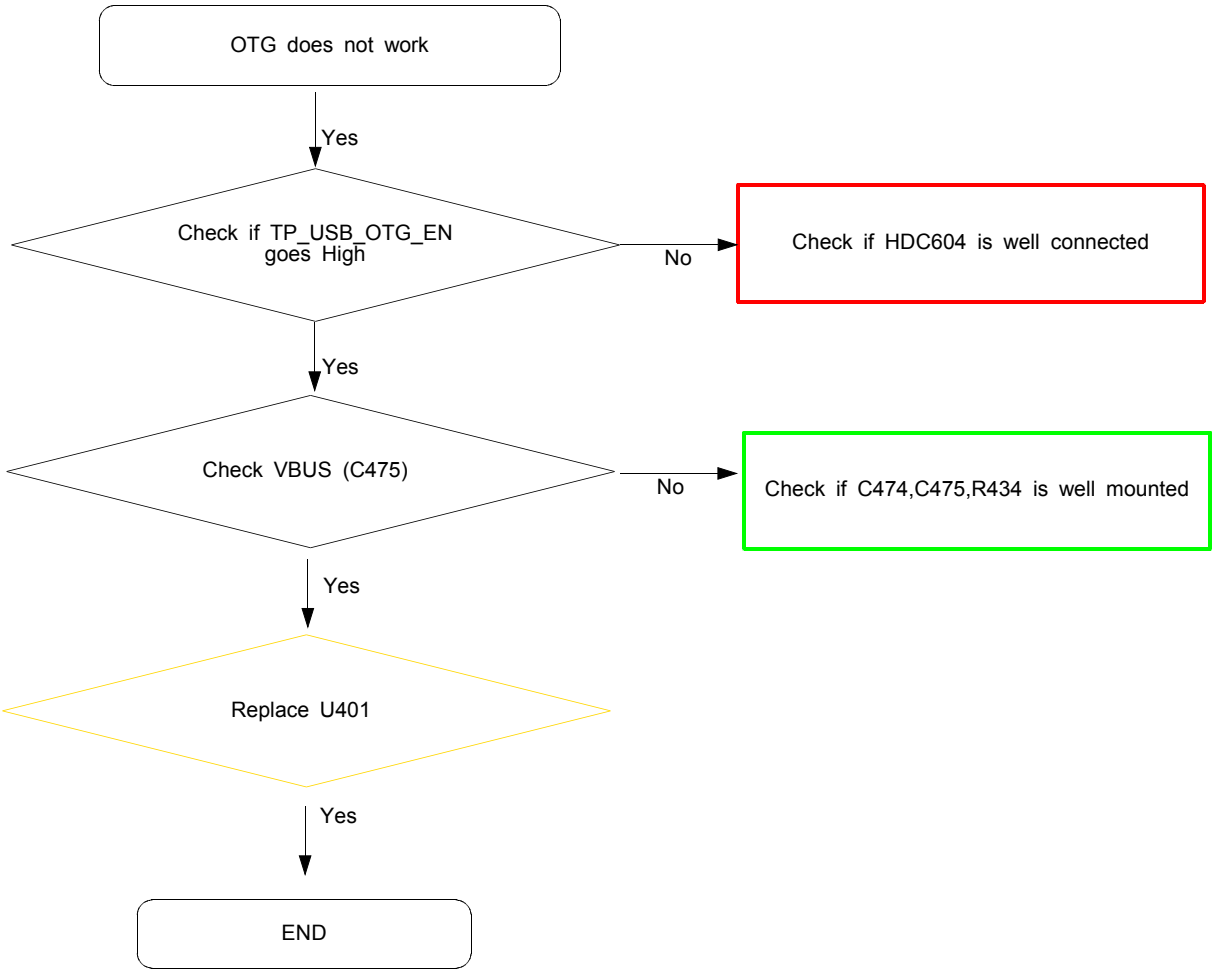
8-3-9. OTG



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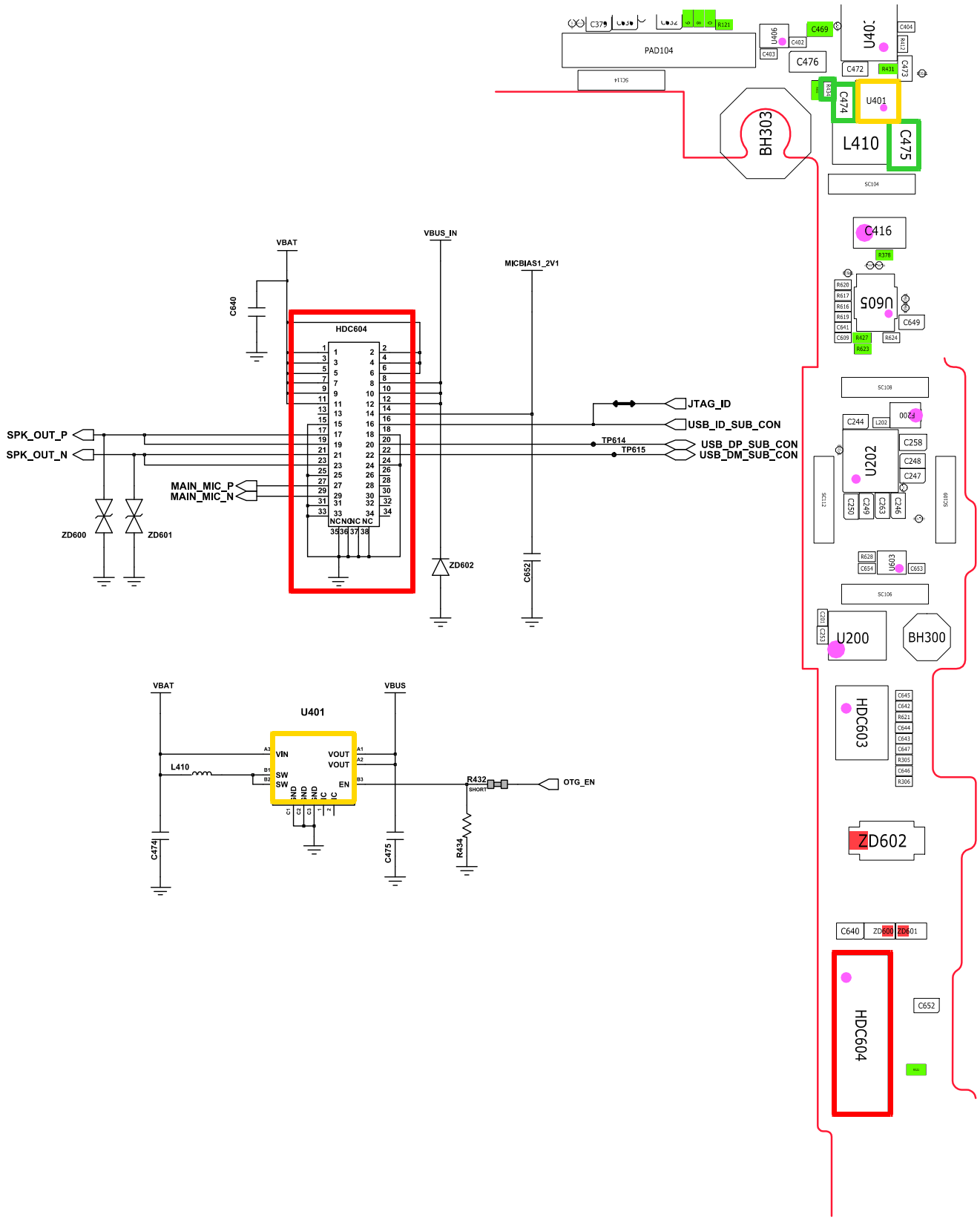

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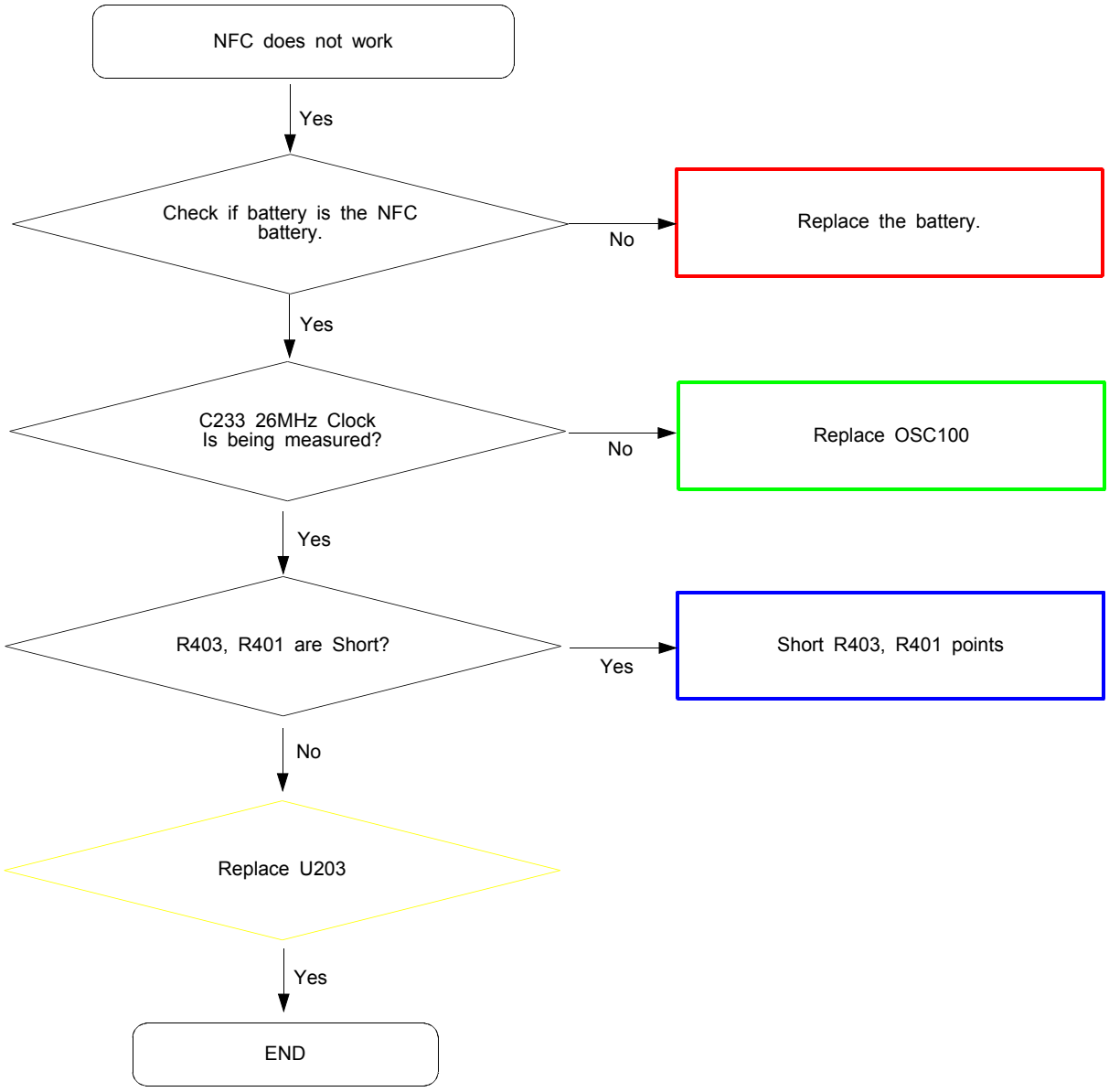
8-3-10. NFC(for I9105P)



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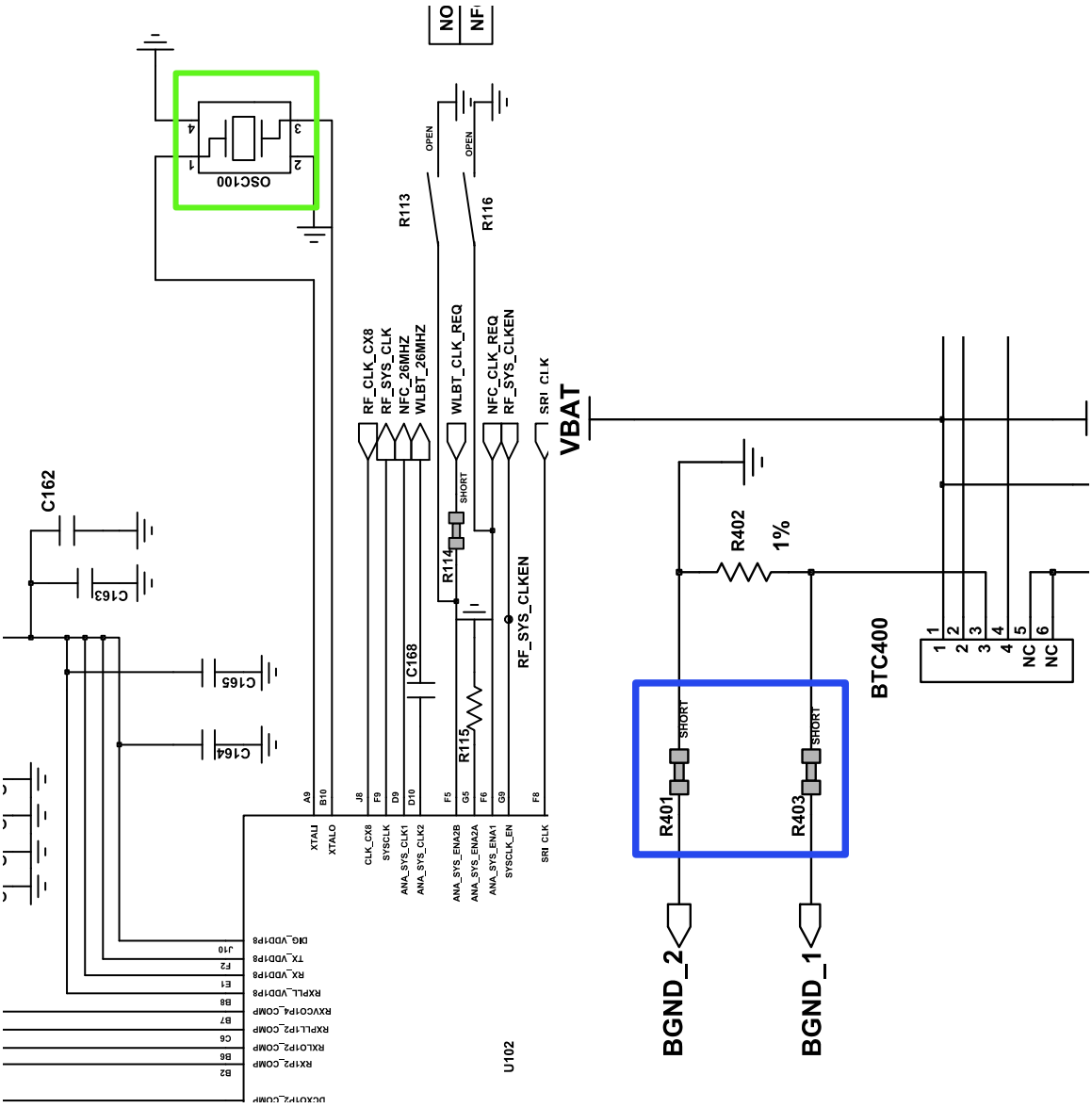

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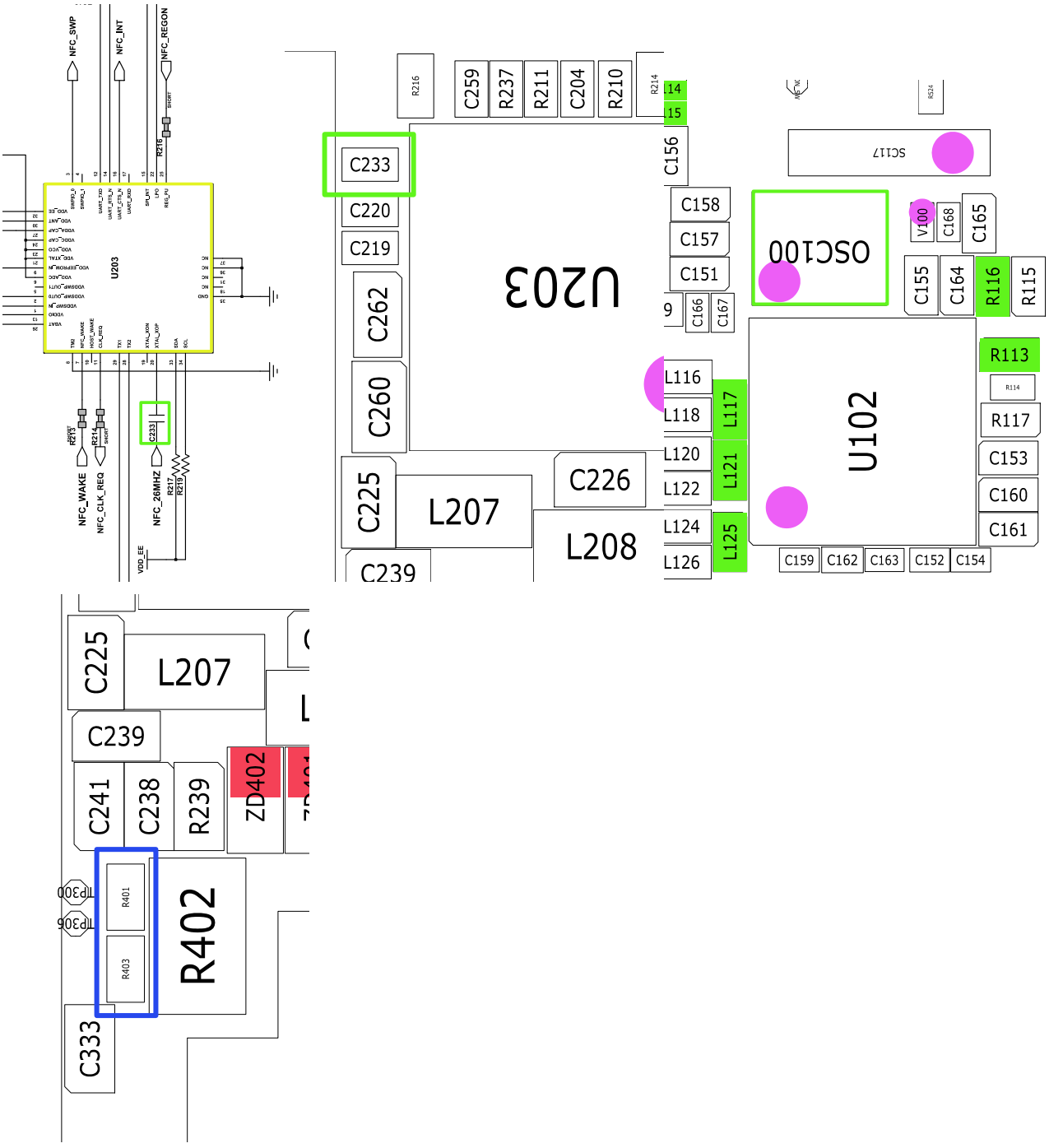

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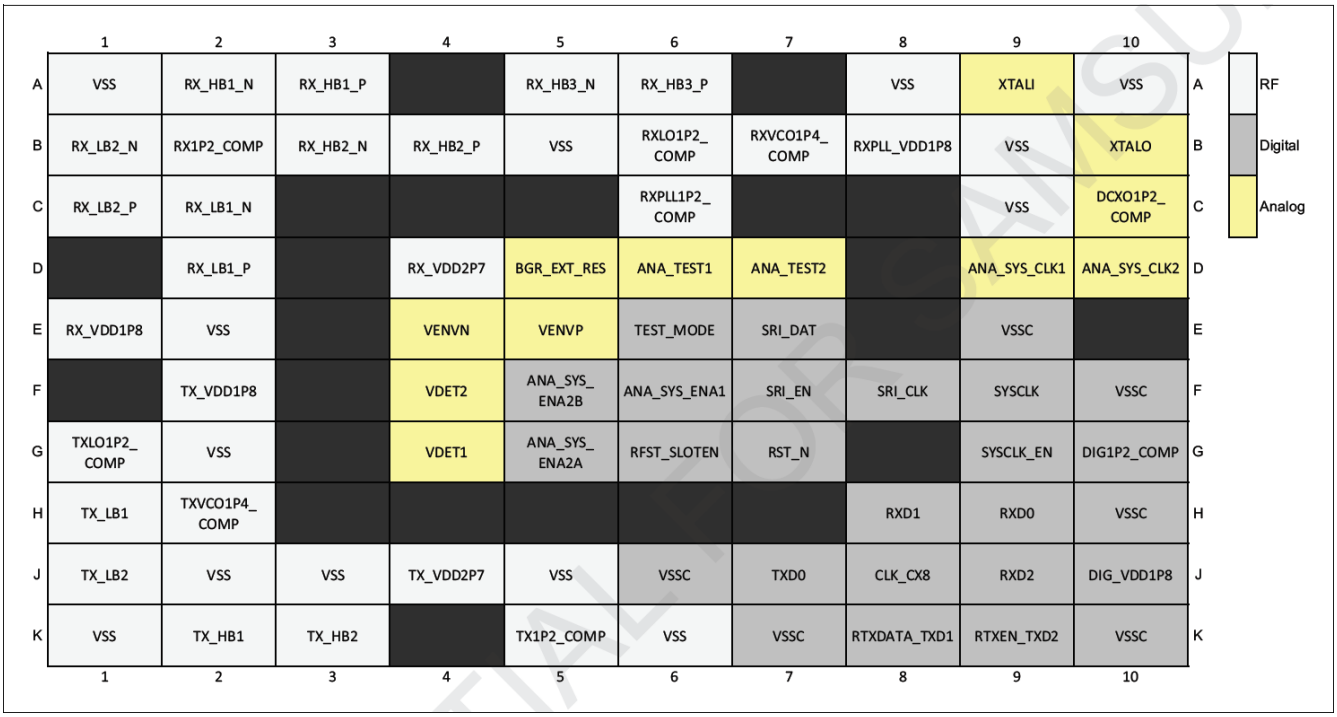
8-4. Service Schematics

U102


1 2 3 4 5 6 7 8 9 10
A VSS RX_HB1_N RX_HB1_P RX_HB3_N RX_HB3_P VSS XTALI VSS A
B RX_LB2_N RX1P2_COMP RX_HB2_N RX_HB2_P VSS RXLO1P2_COMP RXVCO1P4_COMP RXPLL_VDD1P8 VSS XTALO B
C RX_LB2_P RX_LB1_N RXPLL1P2_COMP VSS DCXO1P2_COMP C
D RX_LB1_P RX_VDD2P7 BGR_EXT_RES ANA_TEST1 ANA_TEST2 ANA_SYS_CLK1 ANA_SYS_CLK2 D
E RX_VDD1P8 VSS VENVN VENVP TEST_MODE SRI_DAT VSSC E
F TX_VDD1P8 VDET2 ANA_SYS_ENA2B ANA_SYS_ENA1 SRI_EN SRI_CLK SYSCLK VSSC F
G TXLO1P2_COMP VSS VDET1 ANA_SYS_ENA2A RFST_SLOTEN RST_N SYSCLK_EN DIG1P2_COMP G
H TX_LB1 TXVCO1P4_COMP RXD1 RXD0 VSSC H
J TX_LB2 VSS VSS TX_VDD2P7 VSS VSSC TXD0 CLK_CX8 RXD2 DIG_VDD1P8 J
K VSS TX_HB1 TX_HB2 TX1P2_COMP VSS VSSC RTXDATA_TXD1 RTXEN_TXD2 VSSC K
1 2 3 4 5 6 7 8 9 10
RF
Digital
Analog

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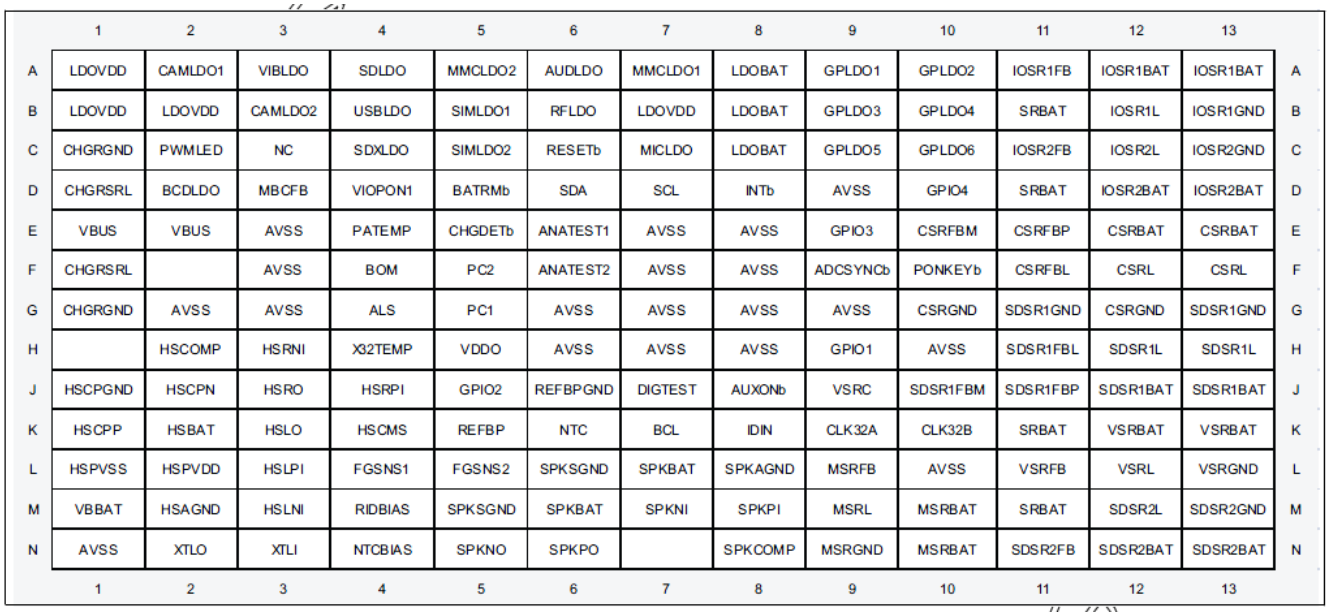
U400



	1	2	3	4	5	6	7	8	9	10	11	12	13	
A	LDOVDD	CAMLDO1	VIBLDO	SDLDO	MMCLDO2	AUDLDO	MMCLDO1	LDOBAT	GPLDO1	GPLDO2	IOSR1FB	IOSR1BAT	IOSR1BAT	A
B	LDOVDD	LDOVDD	CAMLDO2	USBLDO	SIMLDO1	RFLDO	LDOVDD	LDOBAT	GPLDO3	GPLDO4	SRBAT	IOSR1L	IOSR1GND	B
C	CHGRGND	PWMLED	NC	SDXLDO	SIMLDO2	RESETb	MICLDO	LDOBAT	GPLDO5	GPLDO6	IOSR2FB	IOSR2L	IOSR2GND	C
D	CHGRSRL	BCDLDO	MBCFB	VIOPON1	BATRMb	SDA	SCL	INTb	AVSS	GPIO4	SRBAT	IOSR2BAT	IOSR2BAT	D
E	VBUS	VBUS	AVSS	PATEMP	CHGDETb	ANATEST1	AVSS	AVSS	GPIO3	CSRFBM	CSRFBP	CSRBAT	CSRBAT	E
F	CHGRSRL		AVSS	BOM	PC2	ANATEST2	AVSS	AVSS	ADCSYNCb	PONKEYb	CSRFBL	CSRL	CSRL	F
G	CHGRGND	AVSS	AVSS	ALS	PC1	AVSS	AVSS	AVSS	AVSS	CSRGND	SDSR1GND	CSRGND	SDSR1GND	G
H		HSCOMP	HSRNI	X32TEMP	VDDO	AVSS	AVSS	AVSS	GPIO1	AVSS	SDSR1FBL	SDSR1L	SDSR1L	H
J	HSCPGND	HSCPN	HSRO	HSRPI	GPIO2	REFBPGND	DIGTEST	AUXONb	VSRC	SDSR1FBM	SDSR1FBP	SDSR1BAT	SDSR1BAT	J
K	HSCPP	HSBAT	HSLO	HSCMS	REFBP	NTC	BCL	IDIN	CLK32A	CLK32B	SRBAT	VSRBAT	VSRBAT	K
L	HSPVSS	HSPVDD	HSLPI	FGSNS1	FGSNS2	SPKSGND	SPKBAT	SPKAGND	MSRFB	AVSS	VSRFB	VSRL	VSRGND	L
M	VBBAT	HSAGND	HSLNI	RIDBIAS	SPKSGND	SPKBAT	SPKNI	SPKPI	MSRL	MSRBAT	SRBAT	SDSR2L	SDSR2GND	M
N	AVSS	XTLO	XTLI	NTCBIAS	SPKNO	SPKPO		SPKCOMP	MSRGND	MSRBAT	SDSR2FB	SDSR2BAT	SDSR2BAT	N
	1	2	3	4	5	6	7	8	9	10	11	12	13	

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UCP300_UP

4.2 LPDDR2 SDRAM PACKAGE BALLOUT

216Ball FBGA

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
A	NC	VSS_ab	VDD2_ab	DQ30_a	DQ29_a	VSSQ_a	DQ26_a	DQ25_a	VSSQ_a	DQS3_a	VSSQ_a	DQ14_a	DQ13_a	VSS_a	VDD1_a	VDD2_a	DQ11_a	DQ10_a	DQ9_a	DQS1_a	DM1_a	VDDQ_a	DQS0_a	DQ7_a	DQ6_a	DQ4_a	DQ3_a	VSS_ab	NC
B	VSSQ_b	NC	DQ31_a	VDDQ_a	DQ28_a	DQ27_a	VDDQ_a	DQ24_a	VDDQ_a	DQS3_a	DM3_a	DQ15_a	VDDQ_a	VSSQ_a	Vref(DQ)_a	VDD2_a	DQ12_a	VDDQ_a	DQ8_a	DQS1_a	VSSQ_a	DM0_a	DQS0_a	VSSQ_a	VDDQ_a	DQ5_a	DQ2_a	NC	VSSQ_a
C	VDD1_ab	DQ16_b																										VDD1_a	VDD2_ab
D	DQ17_b	VDDQ_b																										DQ1_a	VDDQ_a
E	DQ18_b	DQ19_b																										VSSQ_a	DQ0_a
F	VSSQ_b	DQ20_b																										DM2_a	VDDQ_a
G	DQ21_b	VDDQ_b																										DQS2_a	DQS2_a
H	DQ22_b	DQ23_b																										VSSQ_a	DQ23_a
J	VSSQ_b	VDDQ_b																										VDDQ_a	DQ22_a
K	DQS2_b	DQS2_b																										DQ20_a	DQ21_a
L	DM2_b	DQ0_b																										DQ19_a	VSSQ_a
M	DQ1_b	VSSQ_b																										VDDQ_a	DQ18_a
N	DQ2_b	VDD1_b																										DQ16_a	DQ17_a
P	VSS_b	VSS_b																										VDD2_b	VDD1_b
R	VDD1_b	Vref(DQ)_b																										VSS_b	CA0_b
T	VDD2_b	VDD2_b																										VDDCA_b	CA1_b
U	VDDQ_b	DQ3_b																										Vref(CA)_b	CA2_b
V	DQ4_b	VSSQ_b																										VSSCA_b	CA3_b
W	DQ6_b	DQ5_b																										CA4_b	NC
Y	VDDQ_b	DQ7_b																										CS_b	NC
AA	DQS0_b	DQS0_b																										VSSCA_b	CKE_b
AB	DM0_b	VSSQ_b																										CK_b	CK_b
AC	VDDQ_b	DM1_b																										VDDCA_b	CA5_b
AD	DQS1_b	DQS1_b																										CA7_b	CA6_b
AE	DQ8_b	VSSQ_b																										CA8_b	VDDCA_b
AF	DQ9_b	VDDQ_b																										VSSCA_b	CA9_b
AG	DQ10_b	DQ11_b																										VDD2_ab	ZQ_b
AH	VSSQ_b	VDD1_ab	VDD2_ab	DQ13_b	VSSQ_b	DQ15_b	DM3_b	DQS3_b	VDDQ_b	DQ26_b	DQ27_b	VDDQ_b	DQ30_b	VSSQ_b	VDD2_a	Vref(CA)_a	CA9_a	VSSCA_a	CA7_a	CA6_a	CK_a	VDDCA_a	CKE_a	CS_a	CA3_a	CA2_a	CA1_a	VDD1_ab	VSSCA_a
AJ	NC	VSS_ab	DQ12_b	VDDQ_b	DQ14_b	VDDQ_b	VSSQ_b	DQS3_b	DQ24_b	DQ25_b	VSSQ_b	DQ28_b	DQ29_b	DQ31_b	VDD1_a	VSS_a	ZQ_a	CA8_a	VDDCA_a	CA5_a	CK_a	VSSCA_a	NC	NC	CA4_a	VDDCA_a	CA0_a	VSS_ab	NC

[Top View]

	Channel A		Ground
	Channel B		ZQ
	Power		NC/DNU

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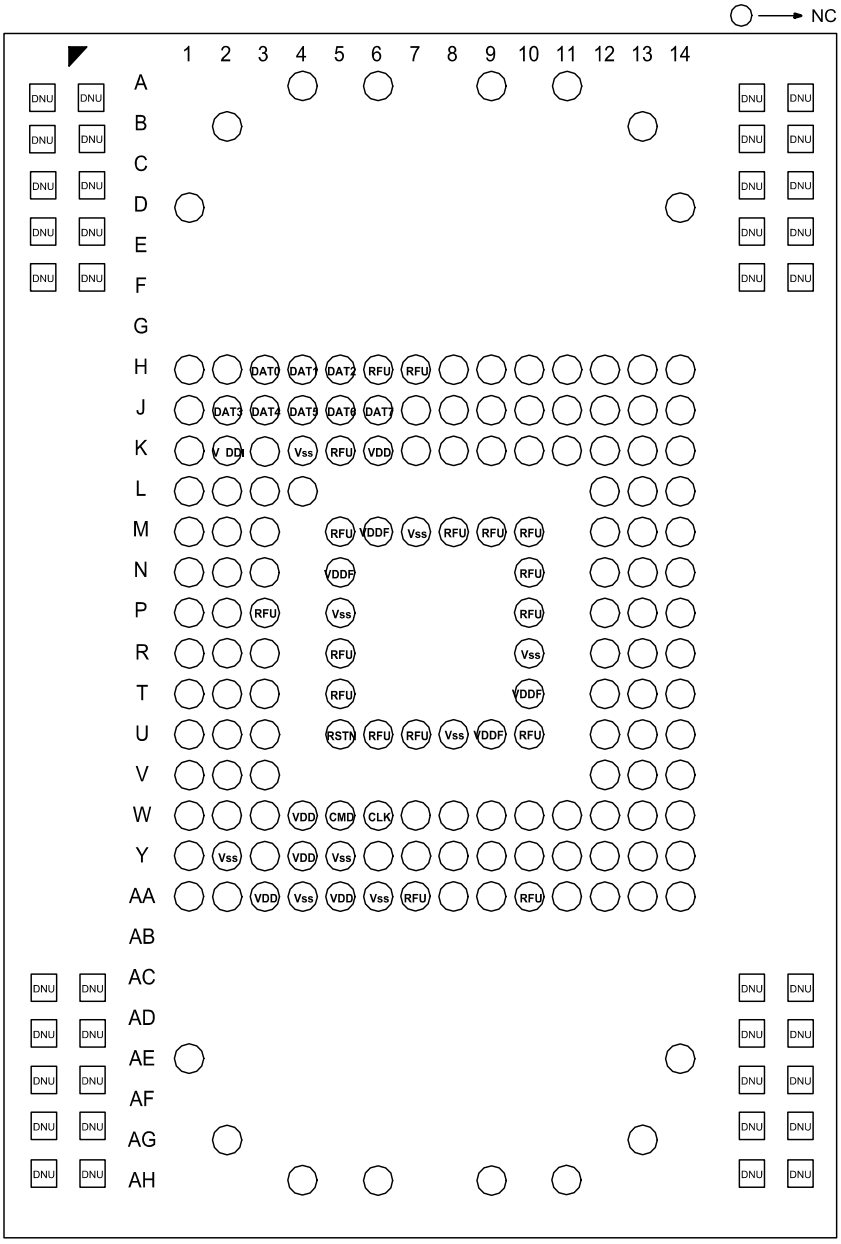
UME300

[Table 2] 169 Ball Information

Pin NO	Name	Pin NO	Name
K6	VDD	AA5	VDD
T10	VDDF	W4	VDD
K2	VDDI	Y4	VDD
R10	Vss	AA3	VDD
W5	CMD	U9	VDDF
W6	CLK	M6	VDDF
H3	DAT0	N5	VDDF
H4	DAT1	U8	Vss
H5	DAT2	M7	Vss
J2	DAT3	AA6	Vss
J3	DAT4	P5	Vss
J4	DAT5	Y5	Vss
J5	DAT6	K4	Vss
J6	DAT7	Y2	Vss
H6	RFU	AA4	Vss
H7	RFU	U5	RSTN
K5	RFU		
M5	RFU		
M8	RFU		
M9	RFU		
M10	RFU		
N10	RFU		
P3	RFU		
P10	RFU		
R5	RFU		
T5	RFU		
U6	RFU		
U7	RFU		
U10	RFU		
AA7	RFU		
AA10	RFU		


NC
1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H J K L M N P R T U V W Y AA AB AC AD AE AF AG AH
DNU
DAT0 DAT1 DAT2 RFU RFU
DAT3 DAT4 DAT5 DAT6 DAT7
V_DDI Vss RFU VDD
RFU VDDF Vss RFU RFU RFU
VDDF RFU
RFU Vss RFU
RFU Vss
RFU VDDF
RSTN RFU RFU Vss VDDF RFU
VDD CMD CLK
Vss VDD Vss
VDD Vss VDD Vss RFU RFU

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